THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XXII. No. 548.] LONDON, SEPTEMBER 23, 1873. [25TH YEAR.] Price 1s.

RAMSAY'S NEWCASTLE CANNEL COAL. Analysis—10,000 cubic feet of gas per ton of coal; 26-candle gas; 13¼ cwt. coke per ton of coal.
The London Exhibition in 1851 was lighted with gas made from Ramsay's Cannel.
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DO. GARESFIELD COKE.

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IMPROVED DRY GAS-METERS.

These Meters are warranted to measure correctly and not to vary. Their acknowledged superiority has brought them into general use more rapidly than any Meters hitherto manufactured.
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OR
15, MARKET STREET, MANCHESTER.

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JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,
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J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay, are promptly executed at their Works as above.
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J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water; Gun-Metal Cocks, Stocks, and Dies; Galvanized Tubes and High-Pressure Tubes, &c.
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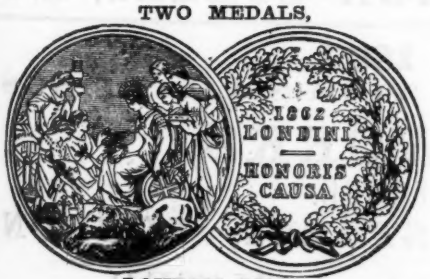

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IMPROVED DRY GAS-METERS, in Cast-Iron or Tin-Plate Cases;

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By use of which Man-lid, inlet and outlet pipes can be examined and cleansed without loss of gas in crown of holder, or ingress of atmospheric air.

ROOFS, GIRDERS, BRIDGES, AND BOILERS OF ALL KINDS.

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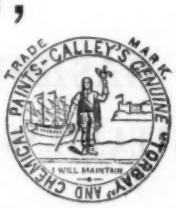

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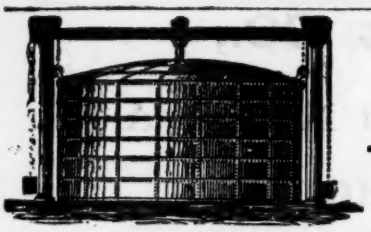

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SOLE MANUFACTURERS of B. W. THURSTON'S IMPROVED SCRUBBER, CONDENSER, and WASHER, in use in many of the principal Gas-Works on the Continent.

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AND ALL DESCRIPTIONS OF APPARATUS USED IN GAS-WORKS.

PATENTEES AND MANUFACTURERS OF THE

DRY-FACED CENTRE-VALVES,

Which are now so extensively used.

During the last year these Valves have been introduced into some of the large gas-works in London, where they are giving the greatest satisfaction. Favourable reports have been received from the engineers of these and of some of the most important works in the kingdom. The demand for them both for home and foreign works continues unabated.

Every Valve is made with covering bars, to protect ALL the faces. The Patentees found the necessity for this almost immediately after they commenced the manufacture of these Valves, and they have ever since adopted the practice. The large experience they have gained has also enabled them to introduce several minor improvements in the construction of their Valves. It is an advantage peculiar to these Valves that the covers can be easily raised, the faces cleaned and oiled, and kept in perfect condition. If managers of gas-works will periodically attend to this, the Valves will be as good after twenty years use as when first put in.

Messrs. COCKEY AND SONS have been very successful in the erection of many gasholders, some of very large size. They erected, in 1871, at Dublin, for the Alliance Gas Company, one of the largest in the kingdom; telescopic, 182 feet 6 inches diameter. It was referred to by the Chairman of that Company the following year, in his report to the shareholders, as having been in use, and working most effectively, since its erection, and being in the highest degree satisfactory to the Company.

Plans of gas-works are carefully prepared, and every improvement which long practical experience can give is introduced into works entrusted to the care of the Advertisers.

References can be given to the Directors of many Companies who have placed works in their hands, and who will testify to the satisfactory results of so doing.

MESSRS. NEWTON, CHAMBERS, & CO.,

THORNCLIFFE IRON-WORKS, NEAR SHEFFIELD.

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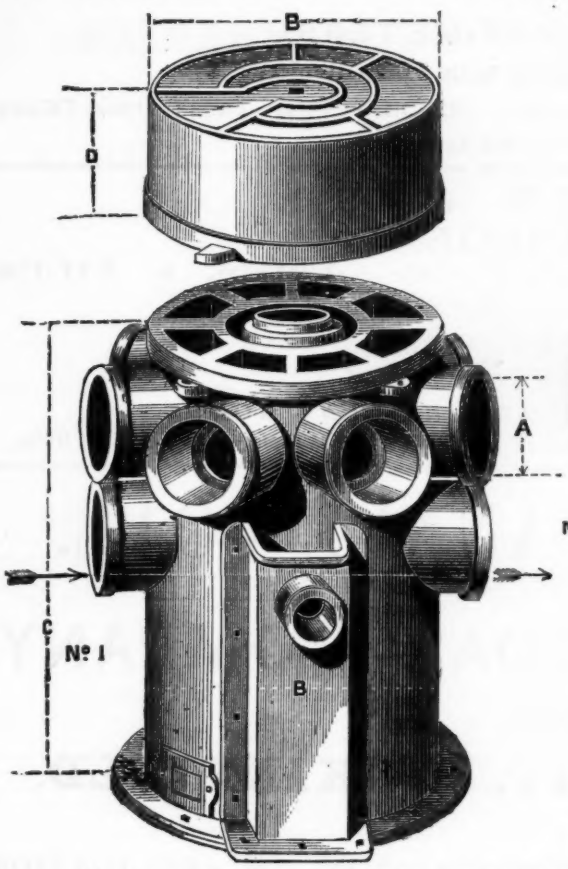

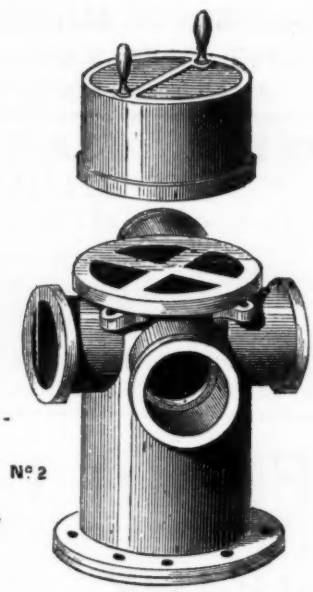

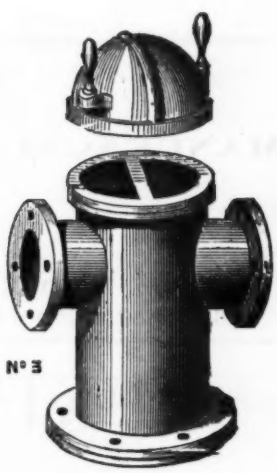

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B. Diameter of Body .	16 ..	20 ..	23 ..	26 ..	28 ..	31 ..	34 ..	40
C. Height of Tank .	33 ..	35 ..	38 ..	43 ..	46 ..	48 ..	51 ..	56
D. Depth of Cover .	8 ..	9 ..	10 ..	11 ..	12 ..	13 ..	14 ..	16
Total Height . .	44 ..	44 ..	48 ..	54 ..	58 ..	61 ..	65 ..	72

In all cases the Covers are cast heavy enough to resist any required pressure.

The advantages derived from the adoption of these Valves are so manifest and cardinal that in the immediate character of the change—the simplicity of the machine—the facility affording for cleaning out connexions between Valve and Purifier—the perfect collection and delivery by suitable overflow of the ammonia, at a greatly diminished depth from ground-line over the old form of Valve—the advantage of connecting on the same level, and at any angle, or opposite to each other, the inlet and outlet pipes without dip or rise—the clear acquisition of space in the purifying-house, by being able to place the boxes nearer together, the new Valve being entirely under the floor—and lastly, though of the greatest importance, the passage of crude and unpurified gas during the change is minimized to the merest fraction, thus preventing the fouling by impure gas the delicate machinery and easily affected exposed movements of the station-meter, thereby preventing the introduction of the enemy (unpurified gas) into the gasholder. Also a dead abutment is offered to all back pressure, imparting thereby to the gauges, governors, and hydraulic seals, a steadiness of action never realized with the once famous, but now fast becoming obsolete, Hydraulic Centre-Valve.

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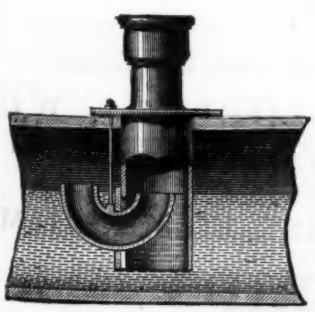
PURIFIERS, CONDENSERS, SCRUBBERS, GASHOLDERS, ROOFS,

And every description of Gas Machinery.

TENDERS GIVEN FOR WORK FIXED COMPLETE IN ANY PART OF THE KINGDOM.



Messrs. N. C. & Co. are also the Sole Agents for

HAWKINS' PATENT SELF-ACTING DIP-PIPES.

These Patent Self-Acting Dip-Pipes are rapidly coming into general use by gas companies. By their use the whole of the pressure caused by the old kind of Dip-Pipes is entirely removed, therefore the yield of gas per ton of coal is considerably increased. They also act as a perfect safeguard against the deposit of carbon (or scurf) inside the retorts.

A saving of fuel is effected, and the wear and tear to the retorts greatly diminished.

They are also perfectly Self-Acting, they being regulated solely by the gas. They cannot get out of repair, and when once fixed, will last as long as the old kind, and can be easily adjusted should the hydraulic main sink; they can also be worked with advantage where there is no exhauster.

Testimonials can be had from Herbert Unwin, Esq., engineer of the Sheffield United Gaslight Company and the Penistone Gas Company. At both these companies works they have been in constant operation for several months. Further testimonials can be had on application to the Patentee, J. G. Hawkins, Effingham Street Gas-Works, Sheffield.

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STATION-METERS OF ALL SIZES, with PLANED JOINTS;

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GASHOLDERS AND TANKS,

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Including Chandeliers, Pendants, Hall Lamps, Brackets, Star and Sun Lights of all designs.

WET & DRY GAS-METERS,

Combining most recent improvements in principle and manufacture; upwards of 200,000 already in work, giving highest satisfaction.
(A guarantee of five years given with every Meter.)

PLUMBERS WORK, including Lift and Force Pumps; Cocks for Gas and Water and Steam; Brass Fittings.

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Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

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AND

CONTRACTOR FOR GAS APPARATUS & MAIN-LAYING.

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MORTON'S PATENT SELF-SEALING RETORT-LIDS,

WITH

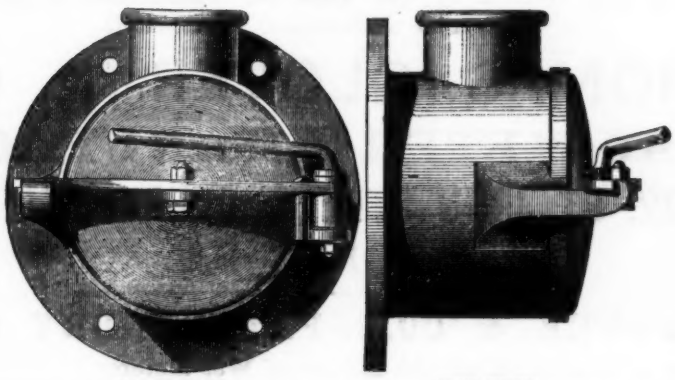
HOLMAN'S PATENT ECCENTRIC FASTENINGS.

OVER 7000 IN USE.

NO LUTING.

LIDS HINGED TO MOUTHPIECES; NO LIFTING ON OR OFF.

NO SCREWS FOR FASTENING.



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SIMPLE.

ECONOMICAL.

DURABLE

EFFECTIVE.

NO DUPLICATE LIDS REQUIRED.

These Lids are proved by many eminent Gas Engineers to be the most efficient, saving much time, labour, and expense; are opened and closed as quickly and with as little trouble as an ordinary furnace door, and by their use the Retorts are soundly sealed during the whole period of carbonization.

THESE LIDS ARE ADOPTED BY THE FOLLOWING (AMONG MANY OTHER) GAS COMPANIES:—

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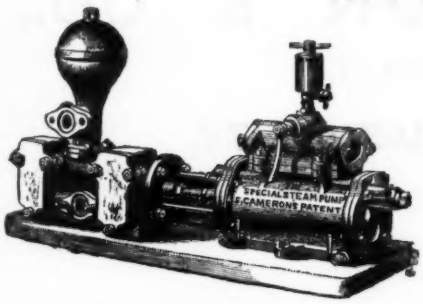
„ London Gaslight Company.	„ Edinburgh Gas-Works.	„ Carmarthen Gas-Works.
„ Independent Gaslight Company.	„ Manchester Corporation Gas-Works.	„ Merthyr Tydfil Gas-Works.
„ Phœnix Gaslight Company.	„ Salford Corporation Gas-Works.	„ Ystrad Gas-Works.
„ South Metropolitan Gaslight Company.	„ Rochdale Corporation Gas-Works.	„ St. Alban's Gas-Works.
„ West Ham Gas Company.	„ Liverpool United Gas-Works.	„ Over Darwen Gas-Works.
„ Imperial Gaslight Company.	„ Birkenhead Gas-Works.	„ Aylesbury Gas-Works.
	„ Birmingham Gas-Works.	„ Cardiff Gas-Works.

The Morton's Lid is made circular in form, that being the most convenient and suitable shape. It can be used for Retorts of any section, by adapting the Mouthpiece casting from the D, oval, or other shape, at the back, to circular in front.

The following important Testimonial, among others, has been given:—

The Gaslight and Coke Company. Engineer's Office, 6, Westminster Chambers, Nov. 14, 1871.

Dear Sir,—In reply to your inquiry, I have the pleasure of stating that the whole of the Mouthpieces at Beckton have Morton's Lids attached to them, and they have given us every satisfaction. We have 2160 in use.—I remain, yours truly, (Signed) F. J. Evans.



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„ Imperial „ 6	Brentford 1	Falmouth 1	Newcastle and Gateshead.. 1	St. Helen's 2
„ London „ 1	Brighton 1	Forfar 1	Northampton 2	Shipley 1
„ Phœnix „ 6	Bristol 2	Guernsey 1	Ogley Hay and Brownhills. 1	Southport..... 2
„ South Metropolitan.... 1	British Gas, Hull..... 1	Henley-on-Thames 1	Oxford 1	Stockton 1
„ Western „ 1	„ Norwich 1	Ipswich..... 3	Plymouth..... 1	Sutton Southcote and Dry-
„ Alliance & Dublin Conrs. 9	Burnley 2	Jersey 1	Portsea Island..... 2	pool 2
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Aylesbury 3	Cork 1	Lewes 3	Rio de Janerio..... 1	Wandsworth 1
Belfast 2	Dewsbury and Batley 1	Londonderry 1	Rochdale 1	Windsor 1
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TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion, must be authenticated by the name and address of the writer; not necessarily for publication, but as a guarantee of good faith.

J. H. U.—*There is no doubt that in the case to which you refer either the boxes or the pipes are too small for the quantity of gas passed.*

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, SEPTEMBER 23, 1873.

Notes upon Passing Events.

THE revival of religious zeal in any form, followed by active interference in secular affairs, has its inconveniences, which must be counted up along with the advantages of real charity and the enert getic promotion of education. The insolent, card-playing, and no-unfrequently hard-drinking, parsons of a departed generation allowed their parishioners to do exactly what they pleased, as long as they paid tithes punctually and lifted their hats reverently to the representative of the Church. The foibles of the modern race are in an opposite direction. They are ready to deny themselves almost everything for the benefit of the poor, but then they desire to meddle in everything. Most troublesome are the claims of the High Church clergy to revive the Roman Catholic doctrine of "sacrilege" in the common affairs of life. For instance, when the Star and Garter Hotel, at Richmond, was burned down, it was asserted, and not denied, that lives were lost because the parson of the parish refused to allow the life-saving apparatus to stand in a corner of the churchyard, on the plea that such a use would be "a desecration of consecrated ground." We need not dwell on the contradiction between such "a superstitious use" and the precepts of the New Testament. The probability is that the prohibition, if ever issued, has since been deeply regretted; but a contest on the same plea of sacrilege is now going on at Chichester. The citizens of Chichester have at length obtained the offer of a constant supply of water from a company, instead of having to rely on wells, some of them poisoned by adjoining cesspits, or being obliged to purchase their daily supplies at a halfpenny a bucket. One of the objects of the inhabitants interested in the water company is to protect the city and the precious cathedral from the chances of fire. In order to give extra high pressure, it has been proposed to make use of the tower of the cathedral. Thereupon a cry of sacrilege has been raised. It is not pretended that the needful work will in any way endanger or injure the fabric of the sacred edifice, but only that to store water for any purpose, however useful or life-saving, is a desecration of a building which ought to be entirely devoted to prayers, psalms, sermons, and confessions. Since that "Puritan one," recorded in "Hudibras," who

> Hanged a cat on a Monday
> For killing a mouse on a Sunday,

there has been no more absurd religious extravagance than this. A member of the cathedral Chapter and director of the water company—to whom the basest motives have been imputed, according to the habit of some extra pious men, when any one differs from them in opinion—defends himself and the scheme most completely in the following passages of a long letter addressed to a contemporary:—

> The Chichester Water Company are bound by their Act to supply water at a constant pressure of about 50 feet in the centre of the town. This is sufficient for all commercial or domestic purposes. The proposal which is so much questioned will give a constant pressure of about 100 feet. Such pressure is only needed in the case of fire—I may almost say in the case of fire in the cathedral. It is for this (among other things) we offer it.
>
> From the arrangements in contemplation, the water ordinarily used in the town cannot pass through the cathedral tank. That tank will only give the pressure needed, and a supply in the case of sudden fire.
>
> The main point we shall all gain is time. If these arrangements can be completed, the cathedral will be rendered comparatively safe two years earlier than otherwise. And the plan will be far better permanently than that contemplated when the bill was passing through Parliament, and of course it is perfectly within our Act.

In the present day, when every institution with funds on trust for public uses is on its trial, nothing can be more suicidal than the revival of superstitions worthy of the darkest ages. To be sure the would-be revivers admire those ages, and would, if they could, revive even the dark windows used when glass was dear and no one cared to look outside. Such attempts are the more unjustifiable because the whole tone of public feeling is much more reverent and decent than in the good old times of George III., when cathedral revenues and buildings were treated as the means of providing for the impecunious relatives of bishops and archbishops. The ancient societies of the Middle and Inner Temple administer their little rural estate in the heart of London in quite a different spirit. They produce one of the best town gardens ever seen, and throw it open for the playground of the children of the poorest of the poor. The removal of the hoarding that has so long been a disfigurement of the Temple boundaries, and the substitution of a handsome iron railing, has added another charm to the Embankment road, which, for want of more convenient access, the people of London use so little. Seeing how many hideous and dilapidated tenements still look down on the Thames, one cannot help thinking that the clause forbidding all shops or buildings on the Embankment road was a mistake. St. Stephen's Club at the Westminster, and the great foreign hotel at the Blackfriars end, will be ornaments of a character that might have been carried further with good effect.

Mr. Hayward, the engineer to the Commissioners of Sewers, has just issued—or rather the Commission has—a report on the asphalte paving executed in the City. As far as we can gather, the *Val de Travers*, the *Limmer*, and the *Barnett*, are the only asphaltes that hold their ground, and they have not been in use long enough to enable the engineer to come to a positive opinion as to their durability and cost. The citizens will not return to the noise and dust of granite pavement if they can help it. At present, although the vested interests of the governing powers of the City in asphalte are considerable, there is a rising public opinion in favour of the newest form of wood pavement. The result of the trial between asphalte and wood will turn on the cost of repairs. If wood can be kept in sound working order at a not greater expense than granite, it will obtain a verdict, because it will have the support of all interested in wheeled carriages, although wood cannot be so satisfactorily washed, and will not, after rains, dry like asphalte. The merits of asphalte in wet or dry and very settled weather are patent; but one must have been brought up amongst the roughs of Newage Market to be altogether insensible to the agonies of a hundred horses, straining, and struggling, and tumbling over the roadway of Cheapside after a sudden shower or a greasy fog.

Mr. John Maxwell continues with great vigour and some eloquence

to urge the claims of Richmond to a weir like that at Teddington. In his own point of view he is perfectly right. A weir would secure to Richmond the best water privileges for a town devoted to pleasure, with a brimful river, irrespective of the tide, and, perhaps, sufficiently supplied with conveyance for coals and merchandise by railways. But the effect of another weir on the bed of the Thames below Richmond is much too serious an affair to be settled at the dictation of any vestry, although supported by the opinions of engineers, returned to consider the interests of Richmond and Richmond only. The question must evidently be referred by the Government to an impartial commission, including water engineers of the first class, and presided over by some one of such well-acknowledged ability and courageous impartiality as Sir John Hawkshaw. The engineers of the Conservators of the Thames are scarcely strong enough for the place alone. It would be for the interest of the riverain public that such men as Mr. Thomas Hawksley and Mr. Bidder should give their opinions as arbitrators and not as hostile witnesses.

Up to the present time the great architectural improvements of London, with the exception of those on the Westminster estate, have been most prominent east of Charing Cross. The University of London has been, and the Royal Academy is about to be, housed in two handsome but common-place edifices. Certainly, for picturesque originality the architect of the Royal Academy cannot hold a candle to the gentleman, as yet unknown to fame, who has constructed a huge *restaurant*, the subject of many Chancery suits on the feeble question of ancient rights in Coventry Street. Equally adapted for its purpose, and equally common-place, is the new Post-Office, already found too small for the ever-growing demands of letter-writers and telegram-senders.

In Old Bond Street, which unchanged retains the pristine ugliness and dulness of the Georgian era, an edifice is about to pass away which holds a conspicuous place in the annals of the most stirring epoch of modern English history—the Clarendon Hotel, once the accepted hostel of emperors, kings, and unmedialized princes who flocked to London after banded Europe had put down the first Napoleon, or, as it was then the fashion to call him, the "Corsican "Adventurer." The Clarendon, dull and dear, in spite of excellent cooks and cellars rich in old Madeira and tawny port, has not been able to survive modern competition. It is to be hoped that the rules of the Building Act will do something, when the Clarendon is pulled down, to moderate the dangers of the straits that now exist between it and Long's Hotel, and that the architecture of the buildings which are to take the place of the Clarendon will stimulate sleepy Bond Street to exchange dirty red brick for something more artistic and picturesque. It will scarcely be believed by those who do not know the Woods and Forests, that that august body present every impediment to the erection of any building, however well designed, which may interrupt the harmonious monotony in stucco and paint of Regent Street—the triumph of the Nashian order of architecture.

It must be confessed that occasionally the English people are shabby, although they have many excuses in the behaviour of the Boards of Public Works and of Woods and Forests. But it does look odd to the intelligent foreigner to see the courtyard of Marlborough House, the residence of the Heir to the Throne, hedged in by a new club-house, which appropriates, no doubt for an ample consideration, a frontage which ought to have been applied to the improvement of the Royal residence.

Mr. ex-Chancellor of the Exchequer Lowe owes a large share of his unpopularity to his dealings with "Crown Lands," and what may fairly be called "Crown Perquisites," in which, by the by, the Queen herself has not the smallest interest, while there is very little doubt that it would be for the advantage of the nation if, by sale and investment, the land-jobbery of Whitehall Place were brought to an end once and for ever. Mr. Robert Lowe is an honest as well as an able man. Not a scintilla of jobbery can be laid to his charge—indeed, he does not care enough for his poor relations to provide for them at the country's expense. He is a real reformer of abuses—a genuine economist—and only wants a little sympathy with human nature to be one of the most popular, as well as the most useful, members that ever sat on the Treasury Bench. His mistake about the lucifer matches was very excusable after all; the tax answers in the United States and in France, and there is not a farmer or a master carpenter in the kingdom that does not wish that the minimum price of lucifers was sixpence a box. His Budgets, read in the light of history, will read well. Twelve millions of taxes taken off; twenty-six millions of the National Debt paid off; the Alabama indemnity transmitted without any one finding out the when and where, in spite of the awful vaticinations of the financial critic of the *Economist*—these are substantial feats not rivalled by the performance of a Whig Baring or a Tory Ward Hunt. They are still more satisfactory when taken in connexion with an increase of Government annual expenses for inevitable calls to the extent of two and a half millions, and other payments on account of literature and art. But, with characteristic perversity, Mr. Lowe chose to make himself the advocate of the past traditions of the Woods and Forests. When, in the good times, the public answered the whip of advertisements, and subscribed freely to schemes for railways and docks, whenever a plan for turning a barren sea margin into a port, a harbour, a breakwater, or a dock was projected, the Woods and Forests always appeared as full of objections as an egg is full of meat, to extort for what was worth nothing the value of prospective building land. Mr. Lowe told the applauding guests at the Sheffield Cutlers feast that the people of London wanted to rob the people of England of land worth £40,000. It was not so. The people did want the land for its original value. But who made the stinking mud banks of the Thames worth anything? The ratepayers of London. Peter Pindar says in one of his squibs:

> Good people, give your money at the door;
> And, if I like, I'll give it to the poor.

That's the system of the Board of Works, inherited from the Woods and Forests, and that is the system to which Mr. Lowe sacrificed his well-deserved popularity and defended to the people of Sheffield, who know nothing about the Thames or its banks, or London or its rates.

Professor Williamson, the President of the British Association, elected in the place of Professor Joule, whose health did not permit him to act, has taken up the cudgels for physical science, and carried the war into the enemy's country—if the advocates for a purely classical education may be called enemies. There is no part of the question of university reform that excites more interest or discussion than that of the proper appropriation of those large funds belonging to the colleges of Oxford and Cambridge, which are nominally devoted to the promotion of classical and mathematical learning in the shape of scholarships and fellowships, but which really are held, with very rare exceptions, by clergymen waiting until the falling in of a college living of sufficient income enables them to marry, by barristers waiting until their briefs enable them to give up an income held on the condition of celibacy, and by a not inconsiderable number whose literary and all other labours ceased with the attainment of high university honours, who linger out a life of aimless idleness, if not of dissipation, in the capitals of Europe, not more dignified objects than the companions of Ulysses, the swine of Calypso. This sort of thing, in the present stage of discussion, cannot last. It is, therefore, only right that the professors and students of pure science should lift up their voices and claim some share of the endowments now absorbed by the skilled in classical and mathematical studies, on such terms as would encourage the few devoted to scientific research without reference to large pecuniary profits. At present the youth educated at any of our great public schools (which are in their general system the best schools to make a manly man of a boy), who happens to have a taste for physical science, has a very hard time of it. In the first place, nearly all the prizes, and all the great prizes, which are the first step to university honours, are reserved for the apt in classical and mathematical studies. In the next place, there is personally no understanding between the masters, but a rivalry for the possession of a studious boy. A youth at a great public school, with a strong taste for physical science, wrote the other day to a relative: "I have a "very hard time of it. Mr. A., my classical master, complains that "I give too much time to mathematics; while Mr. B., my mathema- "tical tutor, complains that my whole soul is in chemistry and "botany; the two looking down with ill-disguised contempt on the "modern innovation of physical science classes." Professor Williamson asks for nothing from the universities, which are so gorged with ill-administered and ill-applied wealth, but looks with all the simplicity of a half-educated artisan to that mysterious entity "Government," and that economical machine "Parliament," for the millions needful to create a scientific Utopia of working bees. No matter; when a gross abuse exists, a little ardent exaggeration on the part of a genuine student like Professor Williamson is not unhealthy. There is no flavour of South Kensington jobbery or All Souls College torpidity about the professor. The following is the scheme in his own words. It is full of truths, and points in the right direction, although by an impossible road:—

The first thing needed was workers; the second, favourable conditions for their activity. The most suitable men must be found young and trained to the work. We wanted, therefore, a system which should give the young favourable opportunities of getting a clear and thorough knowledge of the few truths of nature they could understand and enjoy; which should give further instruction to those who have profited by what they had already had, and were anxious for more; which should enable the best students to see what original investigation was, and to assist in it; and, finally, which should apply to each student who had power and will to conduct researches, all the requisite conditions. Investigators thus found should be placed in circumstances favourable to their activity. The first condition was that their desire for the further acquisition of knowledge should be fostered. They should be able to live by their work, without diverting their energies to other pursuits, and must feel security against want. They must be supplied with trained assistants, and with the necessary buildings, apparatus, and materials. The outlines of such a system were these. *Let the most intelligent and studious children from every primary school be sent, free of expense, to the most accessible secondary school for one year; let the best of these be selected and allowed to continue for a second year, and so on, until the élite of them have learnt all that is to be there learnt to advantage. Let the best pupils from the secondary schools be sent to a college of their own selection, and there subjected to a similar process of annual weeding; and, finally, let those who get satisfactorily to the end of a college curriculum be supplied with an allowance sufficient for their maintenance for a year, on condition of their devoting their undivided energies to research, under the inspection of competent college authorities, while allowed such aids and facilities as the college can supply, with the addition of money-grants for special purposes.* Let all who do well during this first year be allowed similar advantages for a second, and even a third year. Each investigator thus trained must exert himself to obtain some appointment which would enable him to do the most useful and creditable work of which he was capable. In every college there should be as many professorships and assistants in each branch of science as were needed; and every professor and assistant should have such salary, funds, and apparatus as would enable him to devote all his powers to the duties of his post; but let each professor have also a proportion of the fees, so that it might be his interest to work efficiently and attract pupils. Let every college and school be governed by an independent body of men striving to increase its usefulness and reputation by sympathy and material aid to the staff, and by getting the very best men they could. In addition, institutions for the observation of special phenomena were frequently needed, and would be found desirable in a general system for the advancement of science. Such a system as this would develop and improve itself by the process of working. The thing most needed at the present time was a supply of teachers devoted to science, earnest students, teaching by example. Young men did not prepare for this, first, because the influences round them at school did not awaken in them the desire for this kind of excellence; and, second, because they could not expect by such quali-

ties to reach a position which would afford a competent subsistence. *Reverse these conditions, and the whole thing was changed.*

Tasmania has long been known as the "Happy Land" or the "Sleepy "Hollow" of colonists. With a delicious climate, where the vegetation of the temperate and sub-tropical zones both flourish; with mountains topped with snow, dense forests, and fertile, if not extensive, plains, through which flow rivers and streams, not well adapted for navigation, but admirably for trout and salmon; with excellent roads, the work of convicts, before transportation from the home country was abolished; with flocks and herds and horses equal in quality to the best Europe can produce, Tasmania does not flourish; her young men emigrate to the more active neighbouring colonies, her young women pine for lack of husbands, agriculture stagnates, and commerce declines. The only enterprise in which Tasmania has of late years had any success is in the acclimatization of European fish. The eggs of trout of several kinds have been hatched successfully, and now flourish in congenial torrents and pools, huge in size, and only degenerate from their Scotch and Irish ancestors that they rarely rise to the fly, although they gorge a worm and rush bravely at an artificial minnow. It is an article of faith in Tasmania that salmon also have been produced in their waters. Many witnesses are ready to depose that they have seen the king of fresh-water fishes leaping and splashing in the upper waters of the Tasmanian Derwent; but no one, according to our latest authority, Mr. Anthony Trollope, has ever touched an Australian salmon in the flesh, hooked or netted, boiled or broiled, or on a fishmonger's slab. According to general consent, Tasmania is a land most fitted for those couples who have either done with ambition or never had the feeling, who are either childless, or have sent out their children, like young eagles, to make their own way in the world. Farms and houses are cheap, so are provisions; gardens yield plentifully, and to amateur labour a narrow income will go a long way where little hired service is required. In the present dearness of every part of Europe, Tasmania, an English-speaking colony with a South of Europe climate, may be worth the consideration of annuitants driven from France and Germany by war prices. The only prospect the colony has of change is from annexation to the flourishing province of Victoria, which would relieve them of the cost of a governor and Houses of Parliament, with other expenses incident to independent national existence. A telegraph cable would be substituted for the present expenses of Government. But this idea is only favoured by a narrow minority, although the Melbournites would accept Tasmania with open arms, and make it what the Highlands of Scotland now are for our rich citizens and manufacturers. The Tasmanian Legislature has just established by a narrow majority a new attraction for a limited, but very noisy, class of agitators—a Tasmanian may now, if he likes, marry his wife's sister.

The French seem to be reaping some benefit from mortifications only to be paralleled by those which the first Napoleon inflicted on the Prussians after the battle of Jena, since so amply avenged. Not having any immediate prospect of extending their frontiers, they are stirring in internal improvements with unusual vigour. The projects for the improvements of the harbours of *La Manche* have been pushed on with a zeal and determination we did not anticipate. Whether due to Marshall MacMahon or to M. Deseilligny, the Minister of Public Works, it is equally creditable and astonishing. Nothing like it ever happened under the rule of M. Thiers, who, when Minister of Public Works, was entirely wrapped up in *La grande politique*, and declined to learn anything from an English engineer. The Nautical Commission has seen "how the cat jumped" at head-quarters, and already reported in favour of the deep-sea harbour planned by Messrs. Legross and Liddell, the engineers of the South-Eastern Company, "to be constructed on Chatillon, west "of the present Boulogne Harbour." A final report has to be made by that terrible incubus on French enterprise, *Le Conseil Général des Ponts et Chaussées*. Perhaps they may bend their prejudices against unofficial engineers in deference to a military president, and the work may be commenced in 1874. Dunkirk is also stirring to obtain new docks to accommodate its rapidly increasing trade. Calais will not be contented if left out in the cold after its modern rival Boulogne has been placed in the first rank as a steam-packet harbour. The reclamations of Rouen have renewed the attention so often called to the Seine, which wars in Italy, war in Mexico, and war in Cochin China interrupted under Napoleon III. There is every reason to believe that the navigation of that river might be immensely improved if the theories of desk engineers were supplemented by the advice of men of experience like those called in by the Dutch in their great marine works.

An attack is also being made on the railway monopoly which has been so profitable to the Rothschilds and other millionaires. In France, as in America, where there is no aristocracy, and where the gentry have no influence, millionaires have it all their own way. A new line is projected from Calais to Marseilles avoiding Paris, and saving more than 50 miles between Amiens and Dijon, and a second railway to assist the Paris-Lyons Mediterranean line is also agitated. While every part of France is the subject of a strict railway monopoly under their model system, under our no system every port has two, some five, lines of communication, and so has every manufacturing town. The result is, while goods collected are delivered in England like letters, in France you are lucky if, by a *grande vitesse*, you get a parcel in a week. A correspondent of *The Times*, in reference to the outcries of the timid against the pace of express trains, writes as follows, under the signature of "A Travelling Crab:—

Your correspondent "Cui Bono," in to-day's issue of *The Times*, complains of the speed on English railways, contrasting these lines to their disadvantage with the continental railways. Whatever "Cui Bono's" experience may be, he does not seem to have travelled on French lines. I should advise him, before he again complains of speed, to try an express train from Paris to Marseilles. I suspect he will feel inclined, on arrival at Lyons, to telegraph to you to apologize to the English railways for his most unnecessary attack on their splendid travelling. Twelve hours doing a little over 300 miles, crowded the whole time in a stuffy French carriage, can scarcely be compared to the flying Scotchman or the Irish limited mail.

The reference to the stuffy French carriage is significant to those who know how religiously and insolently the French officials pack a carriage.

Holland has at length completed at Flushing a fit outport for her new railway system, and Holland's example is likely to stir up the Belgians to make a similar port and railway improvements at Antwerp, so that altogether the peace that has followed the greatest war of this generation seems likely to produce some substantial internal improvements in France, which was always threatening, as well as the countries which she threatened to connect.

In reference to the plans for purchasing the railways, to be managed, like the telegraphs, by the State, Mr. W. E. Foster, M.P., spoke some good sense as President of the Section of Economic Science at the meeting of the British Association:

The question to which it referred was excessively difficult, and could not be dismissed with an apophthegm or a mere statement of broad principles. As yet no proof had been given that it was the duty of the State to undertake the gigantic business of the management of the railways, and we were a long way as yet from being driven to accept that alternative, which would entail upon the nation an enormous payment, seeing that, in estimating the amount of the purchase-money, we should have to take into consideration the prospective advance in the value of railway property. The difficulties that would be in the way of the State managing the railways would be almost insurmountable; and the position of the unfortunate members of the Government of the day, if in addition to the burden of all their other sins they were to be held responsible for every railway accident, for every slow train, and for every high fare, would be intolerable. There would also be much difficulty in obtaining an efficient staff to work the lines, because if it were left to the Government to select fit persons for such offices, a vast amount of patronage would fall into their hands, and if the principle of open competition were adopted he should tremble lest that system should break down under so severe a test. It had been stated that the power of the railway interest in the House of Commons was so great as to enable it to crush the Government and to defy all opposition, but while admitting it was not a very difficult thing to do to crush a Government, he thought that the very power of the railway companies in Parliament, when used beyond a certain point, became an absolute weakness on account of the jealousy that was excited by every prominent interest. The experience of last year gained during the passage of the Railway Bill through the House of Commons showed that although the power of the railway companies in that branch of the Legislature was undoubtedly great, it was not overwhelming, and consequently the companies did not have it all their own way.

Circular to Gas Companies.

THE circumstance that among the first to avail themselves of the Gas and Water Works Facilities Act Amendment Act, 1873, are several local authorities, makes it important to know upon what principle the Board of Trade will proceed in considering their applications for power to raise the price of gas. In the case of a company making application the Act is sufficiently explicit. The increase that may be granted is limited to a sum which will only allow the company to pay a 5 per cent. dividend so long as the advanced price is charged; or, if the company have not been so lucky as to pay 5 per cent. for two past years, then the dividend payable is limited to the average amount of those paid in the two preceding years. But, while the intentions of the Act are clear enough in the case of "undertakers being a person, company, or companies carrying on "business for his or their own pecuniary benefit," it is not so clear what considerations are to govern the advance in case of corporations making application. If it be granted that a corporate undertaking is not to be carried on for profit, the matter is simple enough—the increased price conceded will be such a sum as will be sufficient to cover the increased cost of production and no more; and this, we take it, will be the principle acted upon to prevent undue loss to such undertakers. It will be remembered, however, that many Acts vesting gas undertakings in local authorities give such authorities power to impose a "gas-works rate," or "rate in aid," when the income of the undertaking is insufficient to meet the expenses, and we rather think (we have not the Act before us) that the Paisley Act confers such power. In all such cases the Board of Trade would be justified in refusing to grant any increase of price, and directing the authority to avail themselves of the power they have to impose a rate to make up their deficiency. If the produce of such rate, which is generally limited to about 6d. or 1s. in the pound, should not be sufficient to meet the loss, an advance might be granted. But wherever the power to levy a "gas-works rate," or "rate in aid," exists, it ought undoubtedly to be exercised before any advance is made on the maximum price fixed by the Act which conferred the power to impose a rate.

The accounts of the Bolton Corporation for the first financial year since they have been in possession of the gas undertaking show a profit of over £15,000. Nearly £6000 of this is carried to the credit of the general district rate. The Bolton Corporation Act, 1872, gives no power to levy a gas-works rate, and as it is highly probable that before two years are over, when the sinking-fund must be commenced, the Corporation will find themselves unable to make a profit out of 16-candle gas at 4s. per 1000, an increased maximum will have to be applied for.

Rochdale is not so prosperous, the profit realized last year being only £7223, while the outlay on extensions and improvements amounted to £16,593, a total of £31,000 having been borrowed from the Finance Committee in the course of the year. A small advance in the price of coal would obviously make the works unproductive with the present price of gas.

The Corporation of Brighton have resigned themselves to the inevitable, and taken the advice we offered. No one, we believe, will notice any alteration in the burners or the light they give, and if any

should observe the change it will be accepted as part of the set policy of the Corporation to make Brighton as dull as possible of an evening.

The draft Provisional Order of the Dublin and Alliance Gas Company proposes to reduce the present quality of the gas from 20 and 16 candles to one uniform quality of 14 candles. This is as it should be, but the order further proposes that the price of this 14-candle gas shall be 5s. 6d. per 1000, and against this we expect the consumers of Dublin will strongly remonstrate. Probably the directors determined to ask a long price in the expectation of having to submit to some reduction. We are far from saying that 5s. 6d. is an exorbitant price for 14-candle gas in Dublin at the present time, but shall be agreeably surprised if the company get it. We see by a circular issued by the shareholders committee, who promise to put everything to rights, that it is proposed to make a radical change in the direction at the approaching general meeting. Only three of the present directors are recommended to be retained. The reasons for desiring to retain an influential member of the Corporation on the direction may be guessed; but if it is wished to keep the undertaking out of the hands of the Corporation, the policy is questionable. No man can serve two masters, and a director of a gas company in a Corporation always at war with his company occupies a very invidious position.

It is reported, but, we believe, without foundation, that the Swansea gas undertaking is likely to pass into the hands of the Corporation. In the present unreasonable frame of mind of the Corporation, it might be found difficult to persuade them to agree to such terms as the company could possibly accept. The company occupy one of the best positions in the kingdom, and having nothing to fear from the threatened competition of the Corporation, they will be justified in standing out for the full value of the undertaking. Perhaps the success of the Bolton Corporation, who paid the company a very liberal price for the undertaking, may induce the Swansea Corporation to deal with equal liberality. The advantage of the transfer to the public in Swansea may be doubtful. Judging from a small matter like the supply of public lamps, the Corporation would appear to be incapable of properly managing their affairs. These lamps are the property of the Corporation, who contract with the company to keep them in repair. There are nearly 700 in use, and only one or two are allowed as a reserve stock. But unawed by the borough police, mischievous boys or older ruffians smash the lamps to such an extent that as many as 46 have been disabled at one time, and the consequence is that the outskirts of Swansea, so far as public lighting is concerned, must resemble Blackfriars Bridge, on which, as a rule, at least a third of the lamps are extinguished. Furthermore the new lamps supplied by the Corporation are often so bad that, without affording any amusement to the boys, they fall to pieces of their own account. For the past five years the company have from time to time called the attention of the Corporation to these matters without effect, and now they have very rightly raised the charge for lighting and repairs, but only to a sum representing the actual cost for the past year—viz., £1 2s. 4d. per lamp. That so reasonable a demand should have excited so much hostility is extraordinary, and that it should be made an excuse for starting competing works is still more wonderful. If the ratepayers of Swansea are wise, they will think twice before they allow the Corporation to enter upon a ruinous contest with the gas company; but it is probably an empty threat on the part of the council, which all will appreciate at its real value.

There is said to be a prospect of a further advance in the price of coal—most certainly there are at present no symptoms of any decline. Under these circumstances it is not surprising that the two Birmingham Companies should have come, though with much reluctance, to a resolution to advance the price of gas. The addition made is 9d. per 1000 for all consumptions. The report of the Birmingham and Staffordshire Company shows that the profits of the last half year are insufficient to pay half the usual dividend, consequently they have to make a large draw on the reserve-fund, which will still stand at a respectable figure.

We call the attention of our readers to an article we publish in another column, communicated by Mr. Methven, "On Leakage." The plan recommended for ascertaining the leakage in districts is simple and practical. As in any proceedings under the Gas and Water Works Facilities Act Amendment Act the Board of Trade are bound to take into consideration "the amount of gas unaccounted "for and lost," it becomes a duty, on the part of any who intend to apply for a Provisional Order, to make a careful examination of the mains, and reduce the leakage to the lowest possible limits.

Mr. R. H. Patterson has published a pamphlet "On Gas Purifica-"tion in London:* including a Complete Solution of the Sulphur "Question." We need hardly say that the complete solution of the sulphur question was arrived at when the author made the discovery—new, no doubt, to him—that carbonic acid will displace sulphuretted hydrogen from the sulphides of the alkalies and alkaline earths, and that the sulphides of calcium and alkaline metals absorb bisulphide of carbon. But we have said before, and must repeat, both these facts were well known, and had been applied in gas purification long before metropolitan gas referees were thought of. We have no wish to detract in the least from the author's sagacity and industry, and we have on a former occasion expressed an opinion in favour of one of his processes, the scrubbing with soda and sulphide of sodium solutions, but we cannot allow him to claim more than is due to him. The lime process was used with success before the author began his investigations, and the lime process as described in this pamphlet is obviously impracticable. "Suppose," the author says, "that four "lime purifiers are employed, the gas may be passed through the "two first vessels until carbonic acid appears in the gas issuing from "No. 2. As soon as this occurs, No. 1 (the contents of which are "now carbonated) is recharged with fresh lime, and used in the "second place in the series, No. 2 being used as the first of the "series." But surely, when carbonic acid issues from No. 2, it is a sign that the lime there is also fully carbonated; and, since carbonate of lime has not the smallest effect in the purification of gas, where is the use of making No. 2 purifier No. 1? There are some other matters in the pamphlet for a notice of which we have no space on this occasion, but may refer to at greater length in a future number.

* "Gas Purification in London: including a Complete Solution of the Sulphur Question." By R. H. Patterson, late Metropolitan Gas Referee, &c., &c., &c. London: Blackwood and Sons. 1873.

DEATH OF THE CHAIRMAN OF THE COMMERCIAL GAS COMPANY.—We announce with much regret the sudden death, at Eastbourne, on the 6th inst., of James Holbert Wilson, Esq., of 19, Onslow Square, South Kensington, aged 64. Mr. Wilson was a J.P. of the county of Middlesex, D.L. of the Inner Temple, Barrister-at-Law, Governor of Brompton Hospital, and a Director of the Kent Water-Works Company. He had been connected with the board of the Commercial Gas Company almost from its commencement, had filled the post of deputy-chairman for many years, and on the death of Mr. C. Salisbury Butler, M.P., in 1870, he was elected chairman—an office the duties of which he discharged with great ability, energy, and courtesy.

Communicated Article.

LEAKAGE.

By T. H. METHVEN, Bury St. Edmund's.

At the present time there are few more important subjects than leakage, and, strange to say, it has not had the attention from gas managers that its importance demands. Too frequently the great expense of thorough examination of the mains and services, as well as the consequent annoyance to the consumers during the progress of the work, have shelved the subject.

Occasionally, when a fervid manager has broached the matter to a board dividing the maximum dividend, the cost to the company, which would only procure a benefit to the consumer, has stopped the progress of improvement.

Not unfrequently, as these columns can testify, there is a want of thorough information upon the subject, which leads many to doubt whether the gas supposed to be lost was ever made. The inherent tendency of station-meters to fast registration being given as a reason for this doubt.

It is unnecessary at present to discuss the comparative merits of the various forms of joint before the public, but simply do the best that is possible with the existing mains, as it would be out of the power of companies to replace these in any reasonable time.

Neither shall we undertake the consideration of the leakage from large mains in the streets of large towns, in which there is more than the normal amount of heavy traffic. These require special consideration. We shall simply apply our remarks to the mains in ordinary towns.

What, then, may be considered the proper amount of leakage from mains or services in provincial towns of the usual type? How is the actual amount of leakage to be ascertained?

At a recent meeting of the British Association of Gas Managers, some one stated that the offer of gratuities was once made to night policemen for the discovery of leakage!!! A late eminent gas engineer suggested the employment of truffle dogs properly trained, and actually knew of one that would not pass a leaky joint!!! Neither of these plans are available, nor indicate an intimate acquaintance with the subject. Actual tests of sections of mains are the only means of discovery.

As to the lowest possible leakage, Mr. Anderson, of Dover, laid half a mile of 14-inch main, with turned and bored joints covered with resin and tallow, that stood tight at a 6-inch pressure.

At Nottingham the leakage on five miles of newly laid main, without any services attached to it, was 4½ feet per mile per hour at 1 inch pressure.*

At Birmingham the leakage on one mile of 6-inch main, with the usual number of services, was reduced to 19 feet per hour from 1900, with a 12-10ths pressure.

It is within the experience of the writer that a still further reduction may be made, even in the case of old and badly laid mains, and that 12 feet per mile per hour may be considered as a reasonable leakage. In round numbers this represents 12 tons of coals per mile of mains per annum, but there is no reason why even this amount should not by care be reduced one-half. It is, however, evident that as there are 600 joints per mile of main, and also in some cases as many services, the work must be carefully done at first, and attended to afterwards, to attain to this small amount.

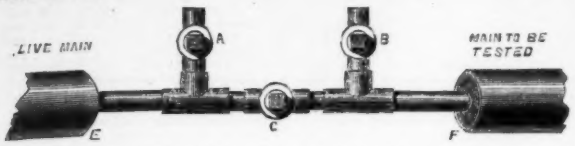
Leakage may be divided into two parts—first, that from the mains; second, that from the services. If the mains are laid by regular main-layers, the leakage is small; if by handy blacksmiths or gas-fitters, it is almost sure to be large. That from the services arises quite as much from the careless way in which they are connected, as from the settlement of the ground or corrosion of the pipes.

How, then, is leakage to be ascertained in small towns? A meter with an inch inlet will register all that passes into the town between 4 and 5 a.m. in the summer months; this may be considered as leakage, and must be localized as in large towns. In these the only plan is to subdivide the mains in sections, either by bladders, valves, or severing the pipe. The last method is to be preferred for pipes under 9 in. diameter. A meter with index showing the consumption per hour by observations of a minute, and a portable minute clock, will at once accurately and expeditiously indicate the leakage.

In practice it will be found easier to begin at the extremities of the town and cut off 200 yards, taking out 18 inches of the main, which can be made tight at each end by plugs of yarn and clay.

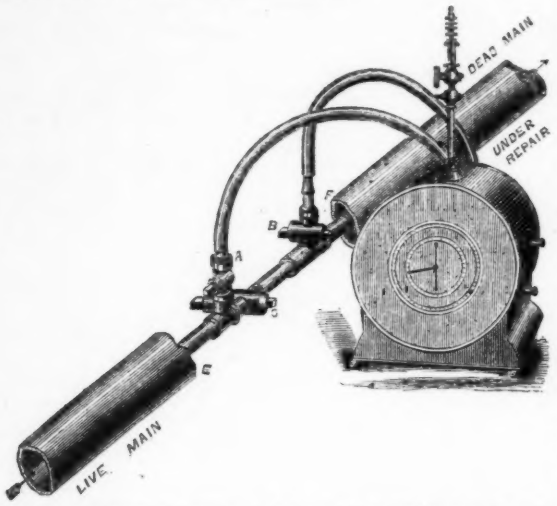
* NOTE.—The actual lengths and diameters were 3759 yards 10-inch main, 3264 yards 9-inch, 60 yards 8-inch, 600 yards 6-inch, 705 yards 5-inch, 243 yards 4-inch, 1125 yards 3-inch.

Then a pipe can be inserted between the live and dead main, arranged as follows:—



The joints, E and F, can be made quite tight with clay covered with a wet cloth.

When connected the meter will stand thus:



The main can be filled by means of the cock C, which can then be shut. All the gas will then pass through the meter by the inlet A and outlet B. If the main cocks in the district are shut, the quantity registered will be leakage.

Whenever convenient, the pressure during the tests should be maintained as high as possible. If the gasholder does not give it in some cases it may be weighted until the required amount is obtained.

In other cases it may be produced by means of a force-pump and portable gasholder. It should not be forgotten that the higher the pressure the easier it is to discover and stop the leaks.

(*To be continued.*)

Correspondence.

CONDENSERS.

SIR,—I read Mr. George Livesey's letter, published in the last issue of your JOURNAL, in reply to which I desire to state that I was ignorant of the fact of his having erected a flat screw condenser, "which has been at work for the last four years" in the works of which he is the engineer. Nor was I aware that he had erected condensers on this principle at the North Shields and Aldershot Gas-Works. The passage, "and has since been adopted by several large companies," was not therefore written with the knowledge of what Mr. Livesey had done for his own or other companies.

My claims to be considered the first who suggested such a form of condenser rest on the following facts:—

During the year 1868, I drew an arrangement of "horizontal flat screw condensers," and submitted my drawings to an eminent London gas engineer, who pronounced the arrangement to be a novel one, and this gentleman revised and wrote part of the description of the plans of this condenser which appeared in the *Engineer* of Jan. 8, 1869. At that time many well-informed gas engineers considered the arrangement a new one—they neither having then seen such condensers erected or described—and the gentleman above referred to has since (I am credibly informed) had this arrangement of condenser erected in the works of which he is the manager. The sentence, "and has since been adopted by several large companies," also referred to two condensers which have been erected by two managers who, previous to adopting this principle of condensation, saw the *Engineer* of the date before referred to.

Horizontal condensation is old, but, up to this date, I do not know of any gas company who adopted the flat screw system previous to the year 1868.

I concur in Mr. Livesey's remarks as to the utility of this form of condenser, and I believe that the adoption of this principle will render scrubbing much less necessary than hitherto, for a few minutes suffice to get a strength of liquor equal to 5½° Twaddle with the condenser, while it takes six scrubbers a week to add on the half degree to bring the liquor up to a strength of 6°.

Stalybridge Gas Company, Sept. 13, 1873, D. A. GRAHAM.

UNACCOUNTED-FOR GAS.

SIR,—Notwithstanding the papers read, and the exhaustive discussion thereon at the recent meeting of gas managers in Edinburgh, there is yet sufficient interest with regard to this important subject as to evoke a correspondence.

Perhaps you will allow me space for a few remarks upon what has appeared in one or two late numbers of the JOURNAL. There can be no second opinion that the first duty of a gas manager consists in making the largest quantity of gas possible per ton of coal, having due regard to the quality of the article produced and the cost of its production. When this is accomplished, every precaution that science and experience suggest should be taken so as to ensure the delivery of all, or as nearly all as possible.

Mr. Warner gives the result of some experiments made by him in order to arrive at the leakage of a given district, and in doing so gives an elaborate account of the lengths and sizes of the mains tested, also the number and description of services and meters supplied therefrom. He then informs us of the total quantity of gas lost per hour in the neighbourhood under examination, and not only so, but actually states the amount wasted by each particular department of the distributory apparatus, crediting mains, services, outside cocks, and meters with their exact proportion of the whole. Gas engineers generally are fully alive to the importance of districting mains in such manner as that any district may be easily tested, and, so far as the total quantity of gas lost in the district named by Mr. Warner, I should feel no difficulty in understanding how that was arrived at. But I am sure it will be worth the while of your readers to hear by what means he was able to discover the precise number of feet lost in escapes from joints, or the exact quantity wasted by lead services, or at outside cocks.

As for myself, I feel more assured than ever that the only successful method of delivering the largest possible quantity of gas—so as to have it paid for—is by constant, watchful, incessant care.

Giving heed to those matters of detail which Mr. W. in his letter describes as mere guesses—viz., look to your station-meter, thoroughly and often inspect consumers meters, watch the temperature at which the gas is measured and the pressure at which it is delivered, regulate public lamps, keep your gasholders sound, and lay down your distributing plant upon a well-considered plan—depend upon it if such minor matters as these seem to receive regular attention, the unaccounted-for gas may, in almost any case, be reduced to within 10 per cent.; but as for bringing it so low as to be lost in condensation, that I think is impracticable, when we consider the many disturbing causes which are continually at play, all having a tendency to leakage; but, of course, the effect of such influences will be of greater or less extent, according to the promptitude and intelligence displayed in their counteraction.

Corporation Gas-Works, Darlington, Sept. 18. WM. B. EMMERSON.

Miscellaneous News.

ALUM AND AMMONIA COMPANY, LIMITED.

The Fourteenth Ordinary General Meeting of this Company was held at the Works, Bow Common, on Friday, Aug. 29—A. ANGUS CROLL, Esq., in the chair.

The SECRETARY (Mr. Guyatt) read the notice calling the meeting. The directors report, as follows, was taken as read:—

The directors herewith present to the shareholders the balance-sheet duly audited for the year ending June 30, 1873.

The results of the working for the past year are by comparison not so favourable as the previous one, arising mainly from the circumstance of the peculiar seasons of the autumn of 1872 and the spring of 1873, both of which prevented, for an almost unprecedented period, agriculturists from applying artificial manures to the land. This circumstance curtailed the business of the company to the extent of 25 per cent. of the gross sales.

Notwithstanding this the directors are able to recommend the usual dividend at the rate of 10 per cent. per annum, free of income-tax, leaving thereafter a reserve of £16,109 11s. 1d.

The directors who retire at this meeting are A. A. Croll, Esq., and Lord A. S. Churchhill, who, being eligible, offer themselves for re-election.

The shareholders auditor also retires, and, being eligible, offers himself for re-election.

The dividend warrants will be handed to the shareholders who may be present at the meeting.

The CHAIRMAN, in moving that the report and accounts be received and adopted, said he considered the statement laid before them satisfactory, although the result was not so favourable as he anticipated when addressing them last year. This arose from certain contracts not having been fully carried out by the customers of the company, but he hoped the coming seasons would be more propitious, and thus enable existing contracts to be fulfilled. Under all the circumstances, he thought he was justified in congratulating them upon the success of their undertaking.

The report was adopted, and the retiring directors and auditor were re-elected.

The usual votes of thanks closed the proceedings.

METROPOLIS WATER SUPPLY.

Major Bolton's report on the water supplied to the metropolis in August states that during the month of August the state of the river at Hampton, Molesey, and Sunbury, where the intake of the West Middlesex, Grand Junction, Southwark and Vauxhall, Lambeth, and East London Companies are situated, was good from the 1st to the 26th, when it became turbid and slightly coloured, and it remained more or less in this condition for the remainder of the month. The highest flood state of the river at Hampton during the month was 4 inches above the (6 feet) summer level, and the lowest 2 inches below.

At Ditton (where the Chelsea Company now alone draws its supply) the state of the water in the river was good during the whole of the month. The highest state of the flood water at this place was 7 inches, and the lowest was at summer level. The highest temperature of the water during the month was 70°, and the lowest 63°, while the highest temperature of the air at the same place was 77°, and the lowest 55°. These observations were made daily at 9 a.m.

There are no changes in the "general remarks" with respect to the other companies.

ATHERTON GAS-WORKS.—At a meeting of the Atherton Local Board, on the 2nd inst., the arrangements for the transfer of the gas-works were completed, and the purchase-money (£11,200) was paid over to the gas company.

RIO DE JANEIRO GAS COMPANY.—The directors of this company (limited) have decided to pay an interim dividend for the past half year at the rate of 10 per cent. per annum, the same as at the corresponding date of last year.

PEEBLES.—REDUCTION IN THE PRICE OF GAS.—The directors of the Peebles Gaslight Company have announced that in November next they propose to reduce the price of gas by 10d. per 1000 feet, making the price 7s. 6d. per 1000 instead of 8s. 4d. as at present. The gas was raised in November last year from 5s. 10d. to 8s. 4d., at which it has remained ever since. The directors declared a dividend of 5½ per cent. last year, while this year it has been reduced to 4 per cent.

PRICE OF GAS IN WREXHAM.—The Wrexham Gaslight Company have made an application to the Board of Trade for power (under the Act passed this year) to enable the company to increase the maximum price of gas allowed by their special Act from 4s. to 5s. per 1000 feet, owing to their having had to pay an increased price for their coal of upwards of 100 per cent., and their dividend in consequence being reduced to 1¼ per cent. for the last half year. The average for the past two years has been under 5 per cent., and the increased price now asked for is to enable them to maintain that rate. The corporation are going to oppose the application on the ground that if the company had not increased their capital during the last two or three years they would have been able to pay a fair dividend without increasing their charge for gas.

PUBLIC LIGHTING ARRANGEMENTS IN THE PROVINCES.—We are informed that the use of the Silber lamps in the town of Southampton has been discontinued during the past week or two, owing to the irregularity of lighting and extinguishing. We are not yet in possession of any reliable information as to the cost of this method of lighting public lamps. It is reported that the street lamps in the Brampton district have not been lighted as usual from the commencement of September, owing to the gas company having raised the price from 50s. to £4 per lamp. The Launceston Local Board of Health, in consequence of a notice of an advance in the price of gas, have resolved to light the town with petroleum oil, and have entered into a contract for the purpose. Referring to the threatened non-lighting of the town of Ashford (Kent), to which we alluded in our last number, the *South-Eastern Gazette* says:—"We hear that a letter has been addressed to the Lighting Committee of the local board by the chairman of the gas company, undertaking on the part of the company to light the public lamps of the town at the price offered by the local board—viz., £5 5s. per lamp." The lamps were accordingly lighted as usual the week before last.

BIRMINGHAM GASLIGHT AND COKE COMPANY.

The Half-Yearly Ordinary General Meeting was held on the 18th inst.—Mr. J. T. COLLINS in the chair.

The following report and statements of account were presented:—

The growing expenditure in the manufacturing department—particularly for coal—alluded to in previous reports, has formed the leading feature in the trading of the past half year. Compared with the returns for the corresponding period of 1872, the present accounts show an improvement in the gas-rental, with a considerable addition to the receipts from coke and other residuals; but these advantages combined have proved insufficient to meet even the increased cost of coal, whilst the deficiency has been augmented by the advances in labour and in the prices of the numerous materials used in the manufacture. These facts, and the still higher rates of the coal contracts for the current year, demonstrate the necessity for raising the price of gas from the close of the present quarter. The enlargements and extensions of the mains are substantially complete, that portion of the expense chargeable to revenue being debited against the profit and loss of the past half year. This explains the increase in the item of distribution. The improvements at the works are not quite finished. Considerable progress has, however, been made, and they will be completed shortly. The expenditure under this head also, other than for enlargements and additions, has been charged against profit and loss. The balance of profit, after making these charges, amounts to £4328 18s. 3d., and there is standing to the credit of dividend account, £6395 7s. 3d.; together, £10,724 5s. 6d. Out of this sum your directors recommend you to declare a dividend of 5 per cent. per annum on all classes of shares—viz., £7500, carrying forward the remainder, £3224 5s. 6d. The increasing consumption of gas having made the erection of new works an absolute necessity, your directors have been, since the last half-yearly meeting, actively engaged in arranging for a site for such works, and are now making preparations for an application to Parliament in the ensuing session. The site secured (conditionally on the passing of the Act) is at Nechells, in the valley of the Rea, having access both to the Midland Railway and to the Warwick canal. It is proposed to ask the sanction of Parliament for the necessary powers to raise such an amount of capital as will be adequate to the probable demands upon the company arising out of the growth of the borough for many years to come, and, excepting the provisions requisite for this purpose, and the incorporation of "The Gas Clauses Act, 1871," the bill, as introduced, will make no material alteration in the company's present position.

Dr. *Balance-Sheet, June 30, 1873.* *Cr.*

To Shares raised under Birmingham Gas Act, 1855, 18 Vict., cap. 48—				By capital outlay—			
1200 class A., limited to 9 per cent., at £80			£96,000 0 0	Works	£177,462 11 7		
400 „ B., „ „ „ 8			3,200 0 0	Mains	106,134 9 8		
3750 „ N.O., „ 7½ „ 40			150,000 0 0	Meters, lamps, and collateral branches	55,564 5 1		
1270 „ N.O. (1866), limited to 7½ per cent. at £40			50,800 0 0	Cost of Act of Parliament obtained in 1855	1,948 18 10		
			£300,000 0 0			£341,110 5 2	
Premiums received on shares			3,716 0 0	Call unpaid		20 0 0	
Loans on the bonds of the company			81,700 0 0	Amount owing to the company for gas, coke, residuals, fittings, &c., exclusive of estimated bad debts, discounts, and commissions		28,561 16 10	
Unpaid dividends			42 9 0	Cash on deposit at Birmingham Banking Company, Limited		15,000 0 1	
Trade debts owing by the company, and customers deposits			18,088 8 7	Stock-in-trade—viz., coal, coke, residuals, manufacturing stock, and fitting materials		20,706 13 10	
Interest on loans unpaid			1,787 4 10	Amount due for rents		189 14 0	
Reserved fund			2,793 6 3	Cash at bankers on general and on dividend and interest accounts, and cash in hand		13,263 4 3	
Balance from dividend account, amount undistributed half year ending December 31, 1872	£6,395 7 3						
Balance from profit and loss account, half year ending June 30, 1873	4,328 18 3						
			10,724 5 6				
			£418,851 14 2			£418,851 14 2	

Dr. *Profit and Loss Account, June 30, 1873.* *Cr.*

EXPENDITURE.				INCOME.			
Management—				Sale of gas, after deducting discounts, adjustments, and bad debts, and expenses of public lamps		£38,057 1 7	
Office salaries and collectors commissions	£1,888 9 10			Coke and breeze, after deducting labour, expenses, discounts, and bad debts		23,490 3 7	
Fees to directors and auditors	460 0 0			Tar, ammoniacal liquor, and sundries (less discounts), profit on fittings, &c.		7,307 19 6	
Stationery, bookbinding, printing, and incidental expenses	643 11 8			Rents receivable		243 18 0	
		£2,992 1 6		Interest allowed by bankers on deposit account		337 10 0	
Manufacture—				Cash discounts on purchases		349 2 4	
Coals, including tonnage and delivery	£40,062 5 9						
Purifying materials and wages	507 4 6						
Supervision, labour, retorts, tools, and implements, with ordinary repairs	11,226 9 3						
		51,795 19 6					
Distribution—							
Ordinary repairs, and maintenance of mains, with costs and repairs of services, wages of meter inspectors, and other expenditure incident to the enlargement and extension of the mains		3,236 15 9					
Meters—							
Restoring and maintaining		409 14 11					
Rents, rates, and taxes—							
Rents payable	£348 8 7						
Rates and taxes	1,795 5 3						
		2,143 13 10					
Professional charges		183 11 9					
Interest on loan capital		1,797 10 10					
Bank charges		35 16 9					
Improvements in the plant at the works not chargeable to capital		2,861 11 11					
Balance carried to balance-sheet		4,328 18 3					
		£69,785 15 0				£69,785 15 0	

The CHAIRMAN, in moving the adoption of the report, said the principal matter to which he had to call their attention, and that to which most prominence was given in the balance-sheet, was the price of coal. In a large manufacturing concern like theirs, that item was necessarily of the greatest importance. They would observe that the cost of coal this half year was £40,000, as compared with £30,000 in the corresponding half year, and even that amount of £30,000 was considerably more than they had paid in former years. The fact that coal was now considerably more than double its normal price had necessitated a revision of the prices they charged for gas. He thought there could be no objection to this. The accounts of all similar companies showed the necessity of such a course. Speaking of gas, he might say that he believed, in Birmingham, was charged at as low, if not a lower rate than most other large towns. They had but little advantage over other towns in the supply of their raw material—coal. The price they had decided upon was an advance upon present prices of 9d. per 1000 feet, the future prices being 3s., 3s. 2d., 3s. 4d., and 3s. 6d., this fourth rate being for consumers of under 10,000 feet. This, he hoped, would make some difference in their income, and place them in a better position next year. Whether this advance would be the final one would, of course, depend entirely upon the state of the markets—they would be able to tell better when they met the shareholders again. The remarks he had made as to the great increase in the cost of coal also applied to labour. In the matter of distribution, also, a considerable increase was shown, although this covered a large expense attendant upon renewals. The rule they had acted upon was to discriminate carefully as to whether expenses should be charged to capital or revenue, and they had been very careful to charge nothing upon capital unless an absolute addition had been made to the plant. They charged new mains to capital, but they had written off old mains when taken up, unless they had been relaid in other parts. They had very considerably increased what he might term their trunk mains for supplying different districts, as they found that in some districts, where formerly there had been little demand, large works had sprung up, which necessitated a reconstruction of their system. He thought that they were now in a position to give a good supply of gas all through the borough, as they had relaid some three miles or more of mains, and effected many other improvements. The shareholders would notice in the balance-sheet an amount put down for improvements of works. He might tell them that they had made large additions to their exhausting, condensing, and purifying apparatus, which would add to a very great amount to the efficiency of their works. They were not now quite completed, but they would be before winter, and he hoped that in that most pressing season they would be able to give a better supply of gas than they had hitherto done. He would further call the attention of the shareholders to the small amount now owing for gas, coke, &c. The money had been paid very promptly for gas and coke, and he might congratulate the shareholders on having got out of the very great difficulty which involved them when there was a large number of arrears. Regarding the sum of £28,000 which appeared as owing to them, he might say that £5000 had been written off to cover bad debts, discounts, and commissions—a sum which he considered most sufficient, as it was in excess of the average of the last few years. They had been very careful in stock-taking, particularly in taking stock of the meters. They had, indeed, carefully examined every particular, so that they might be placed on a thoroughly assured basis. Another point to which he would refer was the erection of stables by the company. At the last meeting it was considered that the company would be benefited by the erection of stables for cart horses, and this work had accordingly been carried out in Barnes Street. There were already there a number of horses and carts. In times past they had had considerable difficulty in carrying out the large amount of carting devolving upon the company, and they had thought that they should be able to do it far better and more economically by having horses, carts, and stabling of their own. With reference to their parliamentary case, he might say that the directors had given the matter great attention, and the bill was quietly progressing. That was not a matter which could be jumped at and settled in a week. There were various *pros* and *cons* to be considered, and they had to take advice from other than themselves. The bill was, however, making considerable progress, and the shareholders would have an opportunity, under a Wharncliffe order, of fully considering its details at a special meeting, which would be called for the purpose, probably in the course of two or three months.

Mr. T. BULLOCK, jun., seconded the motion. He said the chairman had told them that gas was about to be increased 9d. per 1000 cubic feet. This increase upon the former price might appear to them to be a rather large one. He thought he should be able to show them that not only was it not a large one, but that in all probability it would not be sufficient to cover the large advance in the price of coal. Up to June, 1872, they were working with coal at 9s. per ton, and up to the end of June next they would be working at a cost of nearer 22s. per ton. The consumption of coal by that company was so large that in that item alone there was an increased cost over the amount paid in June, 1871, of £60,000 per annum. The increase of 9d. in the price of gas would not by any means cover that sum. They would have to fall back upon the price obtained for residuals, and as an instance of what that would be, he might tell them that the increased value of coke would only cover one quarter of the £60,000. The remaining £45,000 would therefore have to come from the advance in the price of gas. The 9d. advance would never meet the advanced price they would have to pay for coal next year. Their contracts for coal for the present year were already entered into on advantageous terms. Had they not made those contracts when they did, they would have had to pay thousands of pounds more. The shareholders would find on reference to the balance-sheet that they had obtained a considerably increased price for coke. This had to be accomplished under great difficulties, as the directors had to make their contracts for twelve months hence. However, they had obtained an advance, he thought, unequalled by any other company. There would be observed in the balance-sheet an item of £2861 for improvements in the plant at the works, not chargeable to capital. They had had a most anxious time at the works during the past year, and he had no hesitation in saying that at the time when the new management came into power the works were in a most insufficient, neglected and disgraceful state. Every week found matters going worse. The same remark would apply to the mains, and to everything pertaining to the manufacture and distribution of the gas. They had had to spend many thousands of pounds on the works and mains for distribution, and, in addition, to surmount great obstacles arising from the enormous price of materials and wages, and the difficulty of getting the work done at any price. Even now the work was not completed, and the next balance-sheet would contain a sum about as large as that appearing in the present sheet for the same object. While desiring not to spend a shilling more than could be helped, they considered these works absolutely necessary, and therefore they were carrying them out. Another difficulty with which they had had to contend was the carting of their coal. It must be remembered that they had 60,000 tons of coal to cart from the railway station

to their works each year, and this necessarily involved an enormous amount of carting. They had not room at their works to store more coal than was sufficient for a few weeks supply, and on several occasions they were placed in great straits. In the week before Christmas last they housed no less than 4000 tons of coal. At that time they were in great difficulty as to the carting. At one time, when they had only three days supply of coal in stock, the carters left off work, and at another time they struck. The consequence was that the company had to give them what they asked, and during the last two years the price of carting had risen from 9d. per ton to 2s. They had now, however, purchased horses and built stables, so that they could perform the work much more easily in the future. They would have to cart no less than 80,000 tons of coal this year. In conclusion Mr. Bullock paid a high tribute to the zeal and energy of the company's engineer.

Mr. T. Kenrick congratulated the shareholders upon the manner in which the accounts had been collected. By getting in the money promptly they were enabled to economize their capital and avoid great losses from bad debts. He considered also that the directors had done well in making their contracts for coal, as they bought at the right time and at a fair price. Referring to the £2861 spent for improvement of the plant in the works, he said he presumed that works had been erected in place of others destroyed or rendered useless by their new process. It was a very large item, and made a considerable hole in the amount they had available for dividend. He wished to know whether such an item might be expected in future half years. If they were to have £3000 or £4000 per year charged to revenue instead of to capital, it would diminish their chance of getting that better dividend for which they were looking forward.

Mr. G. Turner said he had not the slightest doubt that the £2861 had been put to the proper account. His opinion, however, was that they had no right to divide 5 per cent. this year. Last time they carried forward £6000; now, after dividing 5 per cent., they had only £3000 left. He was sure they were not keeping sufficient in hand. The increases in their expenditure were frightful, and they must remember that they were going to Parliament. Their last bill cost £2000, and what this would cost he could not say. He wished to call attention to the fact that they had £15,000 lying at the bankers. He supposed they would not be receiving more than 2½ per cent. on this, and, if so, that showed they were losing £150 a year clear. He thought it should be applied to the reduction of the loan of £80,000 on the bonds, for which they were paying 4½ per cent He also wished to call attention to the fact that the stock of coal and coke now on hand was only £20,000, while six months ago they had £19,000 worth. In the latter case, however, coal was at 9s. per ton, and now it was more than double the price, which showed that their present stock must be small. Referring to the general expenditure, he found that no less than £6000 per annum was spent in the office below stairs, in salaries of clerks, commissions, &c. If he had the management of that department, he felt sure he should be able to reduce the expenditure 25 per cent. As regarded the parliamentary bill, he contended they should have been furnished with all particulars, so that they could form an idea as to whether they were taking a wise step or not. In conclusion, he wished to know the amount that had been proved for under the estate of their late secretary. He hoped they had proved for £25,000.

The Chairman, in reply to Mr. Kenrick, said, with reference to the amount of £2861 11s. 11d., it was not quite all that would be required to put the works in proper order, as about a similar amount would be expended during the current half year. The purifying and condensing part of their apparatus had been entirely reconstructed, and they had considerably increased the power of their exhausting apparatus. In reply to Mr. Turner, he could say that there were some gentlemen who would have no objection to keep the £10,000 in hand to strengthen the company, instead of declaring a dividend. The majority of them, however, felt that they would not be justified in retaining so large an amount in hand, and therefore it would be their duty to declare a dividend of 5 per cent. to the shareholders. With reference to the balance at the bank, he might say that the £15,000 had been drawn upon to the extent of £5000, and he expected a further draft would be necessary to repay the various expenses incurred. His opinion was that when money was offered to them upon loan on good and favourable terms they did well to accept it, and keep a reserve at the bank. Such a course was much better than having to rush suddenly into the market, and effect loans at high rates for carrying out any works that might be required. As to the stock of coal, the time at which the stock was taken was that when they were clearing out their old summer's stock. At the present time they had one of the best stocks to meet the winter demand that they had ever had. They had not at the present meeting touched upon the parliamentary bill they were promoting, as they considered the proper time to do so would be at the meeting which would be called for the purpose. Regarding the late secretary's case, the sum they had proved for was not the whole amount owing to them, because they considered that if they did so they would have foregone the opportunity of bringing a criminal charge against him if he returned to Birmingham. The line was drawn at the suggestion of a legal adviser, in such a way that they considered they would be perfectly safe, in having sufficient weight attached to any criminal charge which might be brough against Harrison if he returned.

Mr. Bullock also defended the expenditure they were making upon the works, saying that even now they would have great difficulty in carrying on and meeting all demands until their new works were erected. With respect to the expenditure in the office, he would point out that in the year ending June, 1873, the expenditure was £5755, when the work was done efficiently, while in the year ending June, 1871, the expenditure was £8350, everything being neglected and nothing done. In reply to Mr. Turner, in his inquiry about the stock of coal, he might say that the present stock had not been estimated at 22s. per ton, but at 12s. 6d., which was the price paid up to last June.

The motion was then carried unanimously.

Mr. Watson moved, and Mr. E. Davenport seconded, a motion to the effect that a dividend of 5 per cent. per annum, free of income-tax, should be declared.

Mr. G. J. Johnson said, with reference to the case of Joseph Harrison, the amount proved upon his estate was £4800. It must be remembered that the deficiencies were supposed to begin about 1857. When they were going to prove under the bankruptcy, they had to be careful and not prove for a single shilling barred by the Statute of Limitations. The whole of the amounts embezzled between 1857 and 1865 had, therefore, to be shut out. In order that they should be on the right side, and not prejudice their right of prosecuting Harrison if he ever returned, they drew the line at Dec. 31, 1870. They had to support every item of their proof, as the amounts were contested in the most vigorous—he had almost said vicious—manner by other creditors, for the excellent reason that they would have received 20s. in the pound out of the estate if the company had been shut out. As it was, after a long investigation, they did not get more than 5s. Great credit was due to the secretary for making out the accounts as he did, as it was owing to that circumstance that they received as much as they did, in the face of the opposition raised.

The motion was carried.

On the motion of Mr. Kenrick, seconded by Mr. Bolton, a vote of thanks was passed to the chairman, deputy-chairman, and board of directors, for their services during the past half year.

Mr. Turner remarked that it was probable the matter of those defalcations might come before the House of Commons, and, if that was the case, he hoped the gentlemen who sat on the board of directors at the time would be made responsible.

Votes of thanks to Messrs. Beech and Barrow, the auditors, and to the chairman, concluded the proceedings.

BIRMINGHAM AND STAFFORDSHIRE GASLIGHT COMPANY.

The Half-Yearly General Meeting was held on the 15th inst.—Mr. W. Sharp in the chair.

The advertisement convening the meeting having been read, the following report and statements of accounts were presented:—

Your directors submit to the shareholders a balance-sheet, with the profit and loss account, of the half year ending June 30, showing a sum available for dividend of £11,878 7s. 4d., which involves the necessity of drawing on the reserve-fund to the extent of £13,672 17s. 8d., to pay the usual dividend, which they recommend you to declare. This large deficiency is fully accounted for by the increased cost of coals and labour. The profit and loss account of the past half year shows that at the present price of gas little profit can be made, therefore your directors feel that they have no alternative but to raise the price, to commence with the ensuing quarter. Additional capital being required for buildings and other extensions to meet the increasing demand for gas, your directors have resolved to make another call of £1 per share on the £28 shares, payable the 1st of November. More ground being required for enlarging the works at Saltley, your directors have given notice to terminate the contract with the Creosote Company at the end of this year, and they have entered into contracts with two respectable firms, to take the tar from January next for a terms of years, and manufacture it apart from the gas-works. Since the last meeting your directors have been called upon to express their regret at the loss by death of a valuable and estimable member of their board, Mr. Horton. To fill up the vacancy thus occasioned, your directors have had pleasure in electing Mr. J. D. Goodman. The directors who retire by rotation are Mr. Lowe, Mr. Heaton, Mr. Ledsam, and Mr. Wiggin, and, being eligible, they offer themselves for re-election.

Dr. *Profit and Loss Account, June 30, 1873.* *Cr.*

To Coals	£95,391	13	4	By Balance brought from last half year's account	£32,808	4	0
Purifying materials and process	1,715	7	9	Sale of gas, after deducting £5000 for estimated discounts and bad debts	79,635	16	5
Repairs & maintenance of meters, mains, service-pipes, & other works	11,342	12	11	Coke and breeze	45,252	6	10
Wages	12,612	2	1	Tar and other residuals, and fittings	13,752	4	9
Lamps (providing, lighting, extinguishing, cleaning, and repairing)	1,573	15	10	Rents	306	2	3
Rates and taxes	4,130	14	6				
Salaries, collectors commission, and payments to directors	5,489	10	8				
Interest on loans	998	6	2				
Professional charges and incidental expenses	1,246	9	9				
Dividends paid to proprietors—viz., 10 per cent. per annum on £320,400. Capital raised under Act of 8 and 9 Vict., cap. 66	16,020	0	0				
Seven and a half per cent. per annum on £237,500, raised under Act of 21 Vict., cap. 1	8,906	5	0				
Miscellaneous	449	8	11				
Balance carried to next half year's account	11,878	7	4				
	£171,754	14	3		£171,754	14	3

Dr. *Balance-Sheet, June 30, 1873.* *Cr.*

To Capital raised under Act 8 & 9 Vict., cap. 66	£320,400	0	0	By Cost of works, Dec. 31, 1872	£583,737	16	2
,, ,, 21 Vict., cap. 1	262,500	0	0	Add extensions made during the half year	9,487	5	5
,, ,, 27 & 28 Vict., not bearing dividend	10,906	0	0		£593,225	1	7
Calls prepaid	3,350	0	0	Amount invested of the reserve-fund	42,942	19	7
Amount of loans	36,775	0	0	Calls unpaid	16	0	0
Reserved fund	63,275	9	3	Amount owing to the company for gas, coke, residual products, fittings, &c. (exclusive of estimated discounts and bad debts)	71,660	5	4
Amount owing by the company	43,649	6	7	Coals in stock	30,162	15	6
Unclaimed dividends	627	15	0	Residual products, and other stock	4,536	9	0
Balance as above	11,878	7	4	Cash in hands of treasurer and cashier	10,807	7	2
	£753,361	18	2		£753,361	18	2

The Chairman, in proposing the adoption of the report, said the shareholders would perhaps allow him to indulge himself in expressing, on behalf of himself and co-directors, the pleasure they had in again meeting the shareholders at the end of another half year. A statement of facts and figures had been placed in their hands, with which he thought they would be perfectly satisfied, particularly as the figures had been verified by a public accountant. The last time he presided at one of their meetings he ventured to express an opinion, based on the prosperous condition of the company, that they would be able very shortly to pay off their bonded debt, and that they would have the pleasure of reducing the price of gas. Alas, alas! how vain were the ideas of man, how narrow the gauge in all his calculations. He was sorry to say that instead of paying off the bonded debt, it had been increased, and instead of lowering the price of gas, they had to give notice that they must raise it. Beyond this, in consequence of the tide of circumstances, consisting of an unprecedented increase in the price of coal, iron, and labour, the directors had been obliged, in order to meet the amount required to pay the usual dividend, to draw upon their past savings. Notwithstanding all this, their prospects, in his opinion, were most encouraging, and he thought they might speak with the same confidence as formerly that their dividend was secure.

The motion was seconded by Mr. Wiggin, and carried.

On the motion of the Chairman, seconded by Mr. Wiggin, the following resolution was then passed:—"Resolved, that a dividend be now declared, at the rate of 10 per cent. per annum, on the capital raised under the Act of 8th and 9th Victoria, chapter 66; and 7½ per cent. per annum on the capital raised under the Act of 21st Victoria, chapter 1, payable at the bank of the Birmingham Banking Company, Limited, on Monday, Sept. 29, 1873."

The retiring directors, Messrs. H. Lowe, G. Heaton, J. Ledsam, and H. Wiggin, were respectively re-elected.

The CHAIRMAN said they had heard that the price of gas was to be raised at the end of the present quarter, but the exact scale had not been made known because the directors thought the information should be given to the shareholders before it was given to the public. The scale of charges would be as follows:—Under 10,000 cubic feet per quarter, 3s. 6d. per 1000 cubic feet; 10,000 and under 25,000, 3s. 4d.; 25,000 and under 100,000, 3s. 2d.; 100,000 and upwards, 3s. That scale would be subject to a discount of 5 per cent. on quarterly payments in cash, provided that there were no arrears. It appeared that they had lowered the price of gas five or six times within ten years; and the prosperity of the company being on an ascending scale, he thought they would be able to lower it again, though not immediately.

In answer to a shareholder, the CHAIRMAN said that the reserve-fund, after drawing upon it to make up the dividend, would stand at £50,000.

On the motion of Mr. HARDING, seconded by Mr. PERRY, a vote of thanks was passed to the chairman and directors, and the meeting concluded.

DOVER GAS COMPANY.

The Half-Yearly Meeting of Proprietors was held on Tuesday, Sept. 2—Mr. W. R. MOWLL in the chair.

The SECRETARY (Mr. G. Fielding) having read the notice convening the meeting, the following report was presented:—

After carefully weighing all the matters connected with your water-works, we found it would be impossible to carry them on except at a considerable cost to the company, which we should not have been justified in doing, and they were therefore finally closed in the beginning of April last.

We have to report to you that on the 25th of June last we came to a settlement with the managers on the applications they had made for increased remuneration in consequence of the rise in cost of coals, labour, and materials, and the large increase made by the guardians in the rateable value of the company's property.

We relieved the managers of the rates and taxes hitherto paid by them, and we agreed to give them, during the continuance of the term of their existing contract, an increased price for manufacture of gas, to be fixed according to a sliding scale dependent upon the price of coal during each successive half year. And at the same time we provided that the quality of the gas to be supplied by them should be considerably increased, as well as the pressure at which it is to be delivered from the company's mains. We believe we thus made a very liberal concession to the managers, while we secured for the public a vast improvement in the lighting of the town.

This alteration necessitated an increase in the price at which gas is supplied to consumers; and we have reason to believe the public are satisfied that the increased price is fully justified by the altered circumstances of manufacture.

A reference to the manufacturing and profit and loss accounts for the past half year will show you that the consumption has been considerably less than usual, and that more than the ordinary expenses have been incurred, so that the balance is £481 8s. below what is required for the customary dividend; but as both the diminished consumption and extra expenditure have arisen from special and exceptional circumstances, which we have no reason to suppose will recur, we consider the sum necessary to make up the usual dividend of 6½ per cent. per annum may (in accordance with the practice of other companies under existing circumstances) fairly be taken from the surplus profits of previous years, which amount to the sum of £3463 2s., and we accordingly recommend that a dividend at the rate of 6½ per cent. per annum be declared.

The customary reports from the company's engineer and managers accompany.

Mr. William Rutley Mowll retires from the office of director, and Mr. Christopher Kilvington Worsfold as auditor; both gentlemen are eligible for re-election.

We have ordered that a form of proxy shall be sent to every shareholder with this report, and we have to ask those shareholders who are not able to attend the meeting, but who desire to support the directors in their management of the company's business, to sign and return the same to the secretary without delay.

On the motion for the adoption of the report,

Mr. THORNTON asked what were the extra services the engineer had performed. He also wished to have explained the item £12 13s. 10d. for law expenses.

The CHAIRMAN replied that the extra services of the engineer were extra duties required of him. As to the second item, not a single penny had been spent in law voluntarily. The directors very much regretted the expenditure, but it was absolutely necessary.

Mr. THORNTON referred to another item—"Mr. A. Bottle, Inspector, £57 19s. 1d." What had that been for?

The CHAIRMAN said it would be in the recollection of the shareholders who happened to be consumers of gas, that in the short days of the winter there were general complaints of the shortness of the supply of gas, and one very large consumer (Mr. Birmingham) was obliged to light candles in the kitchen of his establishment in consequence. This outlay had been incurred in ascertaining whether the pressure was equal to the requirements of the deed existing between the company and their lessees.

Mr. THORNTON asked why Mr. Bottle required the assistance of Mr. Fletcher, who was paid £16 4s. 6d.

The CHAIRMAN replied by saying that the company never anticipated being placed in the position they were, and therefore had not obtained any machinery whatever to test the pressure. It was necessary that the pressure should be taken at such places as were determined by the directors, and it was necessary that Mr. Bottle should have extra help in order to take the pressure at several different places.

Mr. THORNTON said the chairman had had for some time a conflict with the managers respecting coke, and he attributed the whole of this lavish expenditure to that conflict. That was not the proper way to conduct business. £781 had been taken from the reserve-fund which never ought to have been done. He called this claptrap. Last half year the directors proposed a dividend of 6½ per cent., and for what purpose? Why, to catch votes, and this time they were going to propose another 6½ per cent. dividend for the same purpose—claptrap again.

The CHAIRMAN said Mr. Thornton was a much older man than he, and therefore he had allowed him without contradiction to make assertions which if he had been a man of his own age he should not have allowed him to make. Further than that, he must appeal to the meeting whether the terms Mr. Thornton had used in the absence of any proof were terms he was justified in using. He had alleged that the great increase in the expenditure had arisen from the fact that he (Mr. Mowll) had borne malice and spite against the lessees of the company. He (the chairman) asserted that he had neither malice nor spite against them, and that there was not the shade of the shadow of an atom of proof of Mr. Thornton's statement. It was true that he (the chairman), as one of the shareholders and as a consumer of coke, considered that he had been put to very great disadvantage and not treated with courtesy by Messrs. Anderson and Jones in their refusing to supply him with any coke, while they supplied chaldrons upon chaldrons to other persons, and he contended that even as a shareholder he had a right to have a certain proportion of the coke that was made partly out of his own capital, provided he so needed it. But as to his having borne any malice and spite towards the contractors, he gave that assertion the most flat contradiction that any man could give. As to the £480 taken from the reserve-fund, it arose from this fact: reports had been made to the directors that owing to the insufficiency of the pressure of gas one of their largest consumers was obliged to light candles in his kitchen, and they felt that they would be guilty of a dereliction of duty if they did not take steps to ascertain where the fault lay. Had the consumer so desired, and supposing he could have established the fact in a court of law, he might have proceeded against the company and had them fined £10 a day for the deficiency. Messrs. Anderson and Jones refused to put on the pressure, and even refused to the last moment to fix a pipe for the directors by which they might test the pressure. This increased expenditure, instead of being due to him, must be charged to Messrs. Anderson and Jones for not fairly discharging their contract as between man and man.

Mr. THORNTON said it was the chairman's motto to do to others as he should like to be done by, but he had showu ill-feeling in this matter.

The CHAIRMAN said he thought it beneath his dignity to answer Mr. Thornton again. All he could say was that what he stated was an utter untruth from beginning to end.

Mr. THORNTON suggested the passing of a vote of censure upon the chairman's conduct.

Mr. SHELTON then seconded the adoption of the report.

Mr. THORNTON had an amendment to propose—namely, that a dividend of 6 per cent. be declared, and the remainder carried to the reserve-fund. It was advisable that they should have a good reserve-fund.

Mr. MILLS offered to second an amendment for declaring a dividend of 5 per cent., and Mr. Thornton then substituted the figure 5 for 6, the amendment being seconded by Mr. MILLS.

Mr. HORSNAIL having elicited a satisfactory answer to a question respecting one of the items in the accounts,

Mr. JONES rose and said he thought before the motion that had been proposed was put to the meeting, it was just due to himself to express his extreme regret that any observation should have been made about the coke, because that question had unfortunately been an eyesore upon the part of the chairman. It, however, really lay in a nutshell. Mr. Mowll complained that he had not been able to get coke while other people had been supplied. Well, as a commercial man he must thoroughly understand that when contracts had been made they must be carried out. Mr. Mowll had never contracted with them for coke, but they had had contracts running on through the summer, and they were bound to supply the parties with whom they had contracted. They had actually been obliged to go elsewhere for coke, and import it into Dover, in order to carry out their contracts. They had not treated Mr. Mowll differently to other people; it had been a source of great regret with them at their not being able to supply Mr. Mowll with coke.

Mr. ANDERSON wished to have it distinctly understood that he did not acquiesce in the chairman's statement that they gave a pressure of gas less than they were bound to do. They gave a reduced pressure, it was true, but it was a reduction of the pressure that they had been giving, beyond what they were required to give. The reason why the public were not satisfied with what they formerly were satisfied arose from this fact—that during a number of years they had given a pressure three times the extent of what it was formerly, and had recently been obliged to give a reduction of that, yet a pressure equal to that required by their deed. He should have had no objection to have gone into a court of law on the point. However, it had all passed. As to the dividend, he wished to be allowed to offer his advice on the matter (speaking as a shareholder), which was that, as the company would undoubtedly be in a better position next half year, they had better declare a dividend of 6½ per cent.

The CHAIRMAN, referring to Messrs. Anderson and Jones's observations, wished it to be distinctly understood that he wanted to answer them as far as it was possible in a fraternal spirit, for, unlike Mr. Thornton, they had not dealt in personalities. They had simply gone into figures; with figures he met them. Without wanting to be rude, he begged to tell them that at the time the town was crying out for want of gas, they were not giving in the mains the pressure they were bound to give under their deed. Sometimes the difference was as much as 25 per cent. short of what it ought to be, and he believed on one occasion it even got to 53 per cent. He believed the facts were not sufficient for the company to go into a court of law with, but on one memorable occasion the pressure was nearly 50 per cent. short of what it ought to have been. The contractors held out the inducement to the directors to raise the price of gas by offering to guarantee an annual dividend of 7½ per cent., and, as a *bonne bouche* to the directors, offered to pay them £100 for their services. If the directors had loved money rather than duty, they would have accepted that bait; but they all felt they owed this one duty to the public at large and the consumers—that they should have gas at the lowest rate it could be made, and that the shareholders should receive fair interest upon their money invested. Mr. Mowll then proceeded to deplore the fact of the directors having placed the manufacture of their gas in the hands of what he might call middle men, to the disadvantage alike of the shareholders and consumers. He also said Messrs. Anderson and Jones had asked the directors to raise the price of gas 1s. per 1000.

This latter statement was warmly rebutted by Messrs. Anderson and Jones, and it transpired upon inquiry that Mr. Mowll was in error, 6d. being the figure mentioned and not 1s., and the chairman retracted the statement; but argued that the price was not of material importance.

Mr. JONES said if the directors had adopted their suggestion to meet the difficulty in the price of coal, that they should extend their (Messrs. Anderson and Jones) term, and raise the price of gas to 6d. per 1000 all the time coal was 20s. per ton, by which they would guarantee a dividend of 7½ per cent., the shareholders would have been receiving a dividend of 7½ per cent., and the reserve-fund would not have been touched.

Eventually the amendment was withdrawn, and the motion for the adoption of the report carried.

The retiring director and auditor were reappointed.

The CHAIRMAN thanked the meeting for the honour they had done him. The position of the directors in the present state of affairs was a difficult one, but the board simply desired to do their duty to the shareholders in the first instance, to the consumers in the next, and without any wrong to the contractors. He could assure any gentleman in the room who imagined that he had been influenced by any *animus* against the contractors he made the most unjust mistake.

Mr. ANDERSON proposed a vote of thanks to the chairman for presiding at the meeting and for past services, with the carrying of which the business of the meeting came to an end.

CHICHESTER CAMPANILE AS A WATER-TOWER.—A supposed agreement between the New Water-Works Company and the Dean and Chapter of Chichester Cathedral, for converting the campanile into a water-tower, is exciting no small interest at Chichester. In order to get at the facts of the case, the editor of the *Sussex Express and Surrey Standard* applied to one of the solicitors for the company, and that gentleman informs him that the Dean and Chapter have for some time had under their consideration the advisability of constructing a tank of their own on this tower, to be filled by hydraulic pumps, for the protection of the cathedral from fire. When the water bill was passed they were still resolved on having a tank, and this coming to the knowledge of the company, that body proposed to the Dean and Chapter that instead of having a tank to hold 2000 gallons, one capable of holding 20,000 gallons should be constructed, the company undertaking to erect it, free of cost, in consideration of the saving they would effect by the abandonment of a tower (though not of a reservoir) at the Broyle. The company also offer to carry hydrants round the cathedral; and, in the event of the Chapter adopting hydraulic machinery for blowing the organ, to supply the necessary water free of cost. There is a strong feeling against the proposal. The Dean and Chapter, however, adds our authority, have been advised by an engineer and architect that there can be no possible injury to the structure, and that the tank will be concealed from view, it being intended to place it in the story beneath the lantern, and above the bells. The pipes will also be concealed from view. The Dean and Chapter have not given their consent to the project at present, but are waiting for counsel's opinion as to their power in the matter. The campanile, it will be remembered, stands at a short distance from the cathedral.—*Builder*.

BIRMINGHAM WATER-WORKS COMPANY.

The Ordinary Half-Yearly Meeting was held on the 17th inst.—Mr. W. James in the chair.

The following report and statement of accounts were presented:—

The directors have to report that the water-rental for the last half year amounted to £35,387 17s. 8d., exceeding that of the corresponding half year of 1872 by £4649 17s. 5d., and that of the half year ending the 31st of December last by £1258 6s. 4d.; the water-rental for the year ending June 30, 1873, exceeding that of the year ending June 30, 1872, by £8845 14s. 3d. The profit of the last half year is £16,581 8s. 3d., being more than that of the corresponding half year of 1872 by £1229 12s. 10d., and that of the half year ending the 31st of December last by the sum of £372 16s. 5d.; the total profit of the year ending June 30, 1873, being more than that of the year ending June 30, 1872, by the sum of £374 15s. 1d. The profit and loss account for the half year ending June 30, 1873, and the balance-sheet of that date, are now submitted to you. The profit for the last half year—viz., £16,581 8s. 3d., and the previous undivided profit—viz., £1643 11s. 10d., make a total of £18,225 0s. 1d. This sum, owing to the continued high price of coal and other materials, the increase in workmen's wages, and in rates and taxes, is insufficient to pay the usual dividend at the rate of 6½ per cent. per annum. The directors, therefore, recommend that a dividend at the rate of 6 per cent. per annum upon the paid-up capital be this day declared, which dividend will amount to £17,248 8s. 10d., leaving a balance of £976 11s. 3d. profit undivided, to be carried forward to the next account. The directors recommend that the dividends be paid by dividend warrants, forwarded to the shareholders on the 25th inst. The revision of the water-rental, referred to in the last report, has been completed, but its effect is at present only partially realized. The whole of the pumping establishments, and the works at Short Heath and Perry, are in good working order. The water derived from these two sinkings is of a very satisfactory character, both as regards quantity and quality. The works at Whitacre are so far complete as to render the water of the river Blythe available for use. Nearly the whole of the land required for the reservoir at Shustoke has been purchased. The water of the river Bourne, collected in this reservoir, will flow by gravitation to the filter-beds at Whitacre, and from thence will be pumped up for distribution. An agreement has been entered into for the purchase of a small quantity of land at Selly Oak, at which place it is proposed to sink a well; and the directors have every reason to believe that an ample supply of good water will be obtained from this source. During the past half year 39 fires have occurred within the company's district, and in all cases there has been an abundant supply of water. Thirty-seven of these fires have been extinguished without the use of fire-engines, partly by portable engines, and partly by water delivered under pressure from the company's mains; and seven have been on premises not supplied with water by the company. The supply of water in cases of fire is always provided by the company gratuitously. During the past half year a main-pipe has been laid from the Bristol Road, along Edgbaston Lane and Park Hill Road, to Moseley, by which main-pipe the whole of the high parts of that district may be supplied. Extensions have been made in the following streets and roads—viz.: George Street, Balsall Heath; Trafalgar Road, Woodbridge Road, Forest Road, Clifton Road, Moseley; Cathcart Street, Commercial Street, Wordsworth Road, Jenkins Street, Chester Street, Curzon Street, Richmond Hill Road, Alma Crescent, Wharf Street, Cape Lane, St. Vincent Street, Putney Road, St. Augustine's Road, Edgbaston Lane, Moseley Road, Elkington Street, Elvetham Road, Church Road, Soho Hill, Great Queen Street, Cope Street, and New Market Street.

Dr. — *Profit and Loss, June 30, 1873.* — *Cr.*

To Wages current			£935	10	9	
Salaries			1,705	11	3	
Working engines, and wages			8,762	5	4	
Repairs of works			1,109	2	6	
Coals for offices			20	19	11	
Rates and taxes			1,830	8	6	
Interest			3,216	5	1	
Incidentals			497	3	2	
Law charges			238	16	11	
Abatements and bad debts			477	0	10	
Remuneration of directors			450	0	0	
Remuneration of auditors and accountant's charges			51	10	6	
Balance, being profit from Jan. 1, 1873			16,581	8	3	
			£35,876	3	0	

By Water-rents			£35,387	17	8	
Rent of land and cottages			208	1	9	
Fittings account			265	3	1	
Transfer fees			15	0	6	
			£35,876	3	0	

Dr. — *Balance-Sheet, June 30, 1873.* — *Cr.*

To Proprietors, 4800 shares, at £25 per share			£120,000	0	0	
Ditto, 4800 new shares, A, £25 per share called	£120,000	0	0			
Less calls unpaid	25	0	0			
				119,975	0	0
Ditto, 9600 new shares, B, £18 15s. per share	£180,000	0	0			
				180,000	0	0
Ditto, 9600 new shares, C, £10 per share called	£96,000	0	0			
Less calls unpaid	320	0	0			
				95,680	0	0
Ditto, 9600 new shares, D, £7 10s. per share called	£72,000	0	0			
Less calls unpaid	30	0	0			
				71,970	0	0
Amount due on loan and interest				150,200	15	1
Ditto due to sundry persons				5,867	11	2
Ditto due for arrears of dividend				101	8	4
Ditto of capital not bearing interest or dividend				3,022	1	6
Fund for repairs and contingencies and for bad and doubtful debts				3,304	5	6
Balance profit Dec 31, 1872		£19,646	7	5		
Less dividend declared March 19, 1873, at the rate of 6½ per cent. per annum		18,002	15	7		
		£1,643	11	10		
Profit, Jan. 1 to June 30, 1873		16,581	8	3		
				18,225	0	1
			£768,546	1	8	

By Works, engines, machinery, and land			£713,592	1	5	
Water-rents due from sundry persons			38,179	12	11	
Amount due from bankers and sundry persons			11,886	18	2	
Stock of pipes, lead, coal, hemp, and repairing materials on hand			4,854	0	5	
Cash in hand			33	8	9	
			£768,546	1	8	

The Chairman, in moving the adoption of the report, said he thought that, as the dividend was reduced from 6½ to 6 per cent., he ought to explain the cause thereof more in detail than the directors were able to do in their report without making it too long. The report stated that the main cause of the reduction had been the high price of coal, and the increase of rates, taxes, materials, and wages. For the half year ending June, 1871, the cost of coal was £3120, and with that there were pumped 1370 million gallons of water. For the half year ending the 30th of June last, there were pumped 1407 million gallons of water; and if the proportionate cost for the extra quantity pumped was added, it would bring the cost of coal up to £3204, supposing the price of fuel had remained the same as in the half year ending the 30th of June, 1871, whereas the cost of coal for the past half year was £6587, making a difference of £3387, or more than would pay 1⅛ per cent. upon their present paid-up capital. That was one large item of increase. Then, again, the rates and taxes for the June half of 1871 amounted to £973, but for the last half year the amount was £1833, or a difference of £860, and the chief part of the sum referred to Aston and Birmingham. There was also a large increase with respect to material and wages, but the directors had not yet fully gone into the particulars of that increase, and the items to which he had alluded accounted for an increase of something like £4000 in the expenses of the past half year over the amount for the corresponding period two years ago. A very large sum of money had likewise been spent in new works, and there was, of course, a larger amount to pay dividend upon. Although he was personally very much vexed that the dividend had come down from 6½ to 6 per cent., yet, looking at all the circumstances, he was not altogether surprised at it. He might be asked how the directors had maintained their past dividend with the large expenditure that had been going on, and the greatly increased cost of coal, and he would reply, by a general revision of the water-rental which was begun two and a half years ago, and only completed last June. This had yielded a large amount, and had it not been for that he did not know where they should have been.

Mr. C. H. Edwards seconded the motion, and observed that there was of course some cause of regret that the dividend was not maintained, but that was accounted for by the circumstances detailed by the chairman. He should like to hear from the chairman his opinion as to the future prospects of the company, and whether he thought that they should not only be able to maintain the present dividend next half year, but in all probability return to the 6½ per cent. From the information he had obtained, he thought the chairman would answer that question in the affirmative.

The Chairman, in reply to several inquiries by Mr. Turner, said with regard to the sinking of a new well, the directors were forced by the corporation to abandon the Tame and sink wells, so that they had the corporation to thank for that. As to the quality of the water, they obtained nearly four-fifths of the supply from deep wells, and if the public were not satisfied with that, he was very much afraid they would never be satisfied with anything. He quite agreed with Mr. Turner respecting the necessity of economizing fuel, and he hoped engineers would invent some means for preventing the great waste of coal. Their attention and that of their engineer had been called to this question, and he believed that, at the present time, this company's pumping-engines consumed less coal than almost any others in the neighbourhood. The best known apparatus was used at the works, and if any further improvement were made, it would, doubtless, be speedily adopted. With regard to the payment of 4½ and 4¼ per cent. for loans, they had endeavoured to borrow as low as possible, and not to disturb the loans at every rise and fall of the market, which would not answer their purpose. The directors, however, had had under consideration for some time whether they should not give notice for the repayment of the loans, unless the per centage was reduced. Mr. Turner next complained of the arrears; but as the water-rates were not due until the 30th of June, the actual arrears were about £2000 or £3000, and that was not a great deal. He now came to Mr. Turner's main complaint. In 1851 the Birmingham Improvement Act was obtained, and it contained a clause giving the corporation power to purchase the company's works, certain forms being laid down for carrying it out. In 1854, availing themselves of their power, the corporation gave the company notice of their intention to purchase, but from that time to 1871 or 1872, nothing further was done with regard to it. In the latter year, however, the corporation assumed that the 1854 notice was in force, whereas the directors contended that it was not, and they were well advised that it was null and void. In the case of a London railway company, notice was given to a person of the purchase of his land, but no action was taken for 4½ or 5 years, and the company then wanted to acquire the estate. The owner filed a bill to restrain the company, and the Vice-Chancellor stated that he was not called upon to say how long the notice would remain good; but he distinctly said that 5 years was too long, and it was of no effect. The Lord Chancellor, to whom the matter was taken, confirmed the Vice-Chancellor's decision, with costs. The directors, therefore, contended that if 5 years was too long, surely a period of 18 years was, and they consequently refused to hold any communication with the corporation under the 1854 notice, which was null and void. That was the real cause of the delay. A deputation afterwards waited upon the directors, and the then mayor (Alderman Sadler) stated that they had no power to do anything but to ask a question. Mr. R. Heaton, a member of the deputation, asked whether the directors were prepared to sell if the corporation would give them their maximum dividend. "Mr. Heaton, you have no authority to say anything of the kind, and I beg you will not; our authority being to ask the parties if they will sell," replied Alderman Sadler. The directors were advised, and he (the chairman) thought well advised, not to answer the question, and he told Alderman Sadler that the corporation must "open the ball," for the directors could not. What the intention of the corporation was he, of course, could not tell; but the deputation came without authority to do anything except to say, "Please, will you sell?" and the directors were advised not to answer the question. With reference to Mr. Turner's application for a return of persons giving up the water, on the secretary telling him (the chairman) of the application, he said the return must not be given. He asked whether it would be fair to the shareholders to do so? The secretary was right in not giving private information to any shareholder. They might depend upon it that the directors would carry on the concern honestly and fairly to all parties, and as long as he held the position he did, he would adhere to that principle. But Mr. Turner said a large number of the water-rents were being discontinued.

Mr. Turner: I naturally surmise that, if you will not give me the information.

The Chairman said he would give the information. The revision of the water-rents would increase the receipts about £15,000 per annum, and out of the great number of persons to whom notice was sent very few complained. A day was fixed to hear the complaints, but many of the complainers did not attend; and of those who did, many made up their minds to pay, some few stating that they should cut off the supply. The whole amount discontinued, however, was under £400, and a greater part of those who had given it up were repenting, and again taking the water. There would thus be no loss by the course adopted by the directors; and, though it had taken two years to carry out, he thought the shareholders would see that they had got through the work in fair time, and with good result. As to the quality of the water, it was examined by the first chemists of the day, and it was better than that in most towns; while the supply was equal to 10 or 15 years, and greatly above the demand, with no fear of falling off.

Mr. WIGGIN said that there was scarcely a well in Birmingham which had better water than that supplied by the company.

Mr. G. SHAW said the water had been gradually improving in quality for many years past; and, so far as his knowledge went, no town in England had a better supply of water, so far as quality and quantity were concerned, than Birmingham.

The motion was then put, and unanimously carried.

The acts and proceedings of the directors since the last general meeting were then approved and confirmed, a dividend at the rate of 6 per cent. on the paid-up capital was declared, and the proceedings closed with a vote of thanks to the chairman and directors.

HASTINGS AND ST. LEONARDS GAS COMPANY.

The Annual Meeting of Shareholders was held on Thursday, Sept. 4—Mr. G. SCRIVENS in the chair.

The following report of the directors was submitted:—

The coal question still remains in a most unsettled and perplexing state; and, although there have been slight variations in the price and supply of household coal, nothing has occurred to render the supply of coal for manufacturing purposes either easier or cheaper; still, your directors have felt that, notwithstanding the unsettled state of the market, it was their duty to secure a good supply of coal stored on the works, and they have now a large stock on the premises for the present winter's consumption.

It has been found necessary to increase the size of the main in London Road, St. Leonards; but, considering the high price of iron, a portion only of the work has been done—viz., from the Saxon Hotel to the junction of Pevensey Road, it being hoped that this portion will be all that is needed until the price of iron is somewhat cheaper.

The accounts, duly audited, leave a balance to be dealt with by the shareholders of £3031 11s. 10d.; and it is recommended to pay a dividend at the rate of 8 per cent. per annum on the paid-up £25 shares; a dividend at the rate of 7 per cent. per annum on the £20 paid-up shares; and interest at the rate of 5 per cent. per annum on the new £12 paid preference shares; and that the remaining balance of £106 11s. 10d. be carried on to the next half year.

Mr. Deudney, the late chairman, withdrew from the office of director a short time since, and the board cannot allow his retirement to pass without recording their sense of the valuable services which he has rendered to the company during the 16 years in which he has filled the office of chairman, and of the attention which he has paid to the working of the concern, and they regret losing the benefit of his advice and experience.

The following three directors retire by rotation—viz., Mr. G. Clement, Mr. Henry Thwaites, and Mr. G. A. Thorpe, and offer themselves for re-election. One auditor, Mr. Hallaway, also retires by rotation on this occasion, and offers himself for re-election.

The CHAIRMAN, in moving the adoption of the report, said that all present must be well aware that the high price of coals was a matter which seriously affected the position of gas companies. Indeed, it was not only difficult, but in some cases impossible for the managers of gas-works to supply the public and do justice to the shareholders at the same time. This company, however, had cause to be thankful owing to the fortunate circumstance of their having bought coals in good time. They were enabled to pay their way, and to declare a dividend of 8 per cent. on the paid-up £25 shares, and of 7 per cent. on the £20 paid-up shares, and to carry £106 11s. 10d. forward. That statement and report speaks, he ventured to say, for itself, and consequently required very little comment from him. They were in a satisfactory state; but of course he could not say what they might have to face in the future. However, they knew that whatever they had managed to put by would be wanted for 1874, even if not for the current year. But, looking at all the circumstances, the directors thought it advisable and felt justified, as they had a good half year, in making proper provision. To furnish an additional proof of the satisfactory state of the company as compared with other companies, he might mention that he recently met a gentleman from Cambridge who asked him how the gas company was going on at Hastings. He (the chairman) told him, and then the gentleman said, "We at Cambridge are unable to get any dividend at all." It was to be feared, too, that Cambridge was not the only place in the kingdom which paid no dividend to its shareholders. With regard to the improvements and discoveries which they heard of every now and then, in reference to diminishing the cost of gas and light-producing material, he could only say that gas companies would hail as a great boon any means of cheapening the supply of gas; but, so far as they could see at present, they had not yet hit upon a means. The operations of Chichester had not turned out as the sanguine promoters had anticipated, and they could not yet tell whether the manufacture would be in any way successful; while other works at Barnett had ended in a complete failure. The chairman then went on to refer to the laying down of a larger main at St. Leonards, as mentioned in the report, and said that it was a most important thing that they should keep up a good supply of gas. The directors, no doubt, might commit faults, but the shareholders were always ready to forgive them. But there was one thing they would not forgive, and that was a diminution in the supply. In closing his remarks, the chairman again mentioned that they had a large stock of coals, which must be looked upon as an advantage than otherwise. Touching the resignation of Mr. Deudney, he intimated that though the directors had power to fill up the vacancy, they preferred to leave the election in the hands of the shareholders.

Mr. PICKNELL seconded the adoption of the report, which was unanimously carried.

The retiring directors were then severally re-elected, and Mr. Gansden was elected to a seat at the board, to fill the vacancy occasioned by the resignation of Mr. Deudney. In proposing the re-election of Mr. Clement,

Mr. HOWELL said the directors had individually and collectively done their work well during the past year. Some present might remember that he (Mr. Howell) was strongly opposed to the rise in the price of gas some two or three meetings ago. He wished now to say that he was convinced the directors were perfectly justified in the course they then took. He was in hopes that events would be in favour of his recommendation; but the contrary had proved to be the case, and he felt that the amount of dividend declared was only what the shareholders might reasonably expect for their money. He would have been glad to have seen the cost of gas reduced, but they could not do that with the present costly material for the manufacture and supply. He moved a vote of thanks to the directors for the services they had rendered the company during the past year, and said they must have had to contend with great difficulties, as every man who had to deal with wood, iron, and coal would well know. It was gratifying to see how well they had stored the yard, for whatever sort of a winter they might have the town might feel assured of a good supply of gas.

Mr. WINTER seconded the motion, which was carried with acclamation.

The CHAIRMAN, in responding, said he was speaking the feelings of his brother directors when he said that they were all gratified at the expressions of appreciation and renewed confidence which they had received; but, at the same time, there was one gentleman to whose talent and energy the company owed much, and that was the gentleman on his right, Mr. A. H. Wood, the manager. They might depend upon it that managers of gas-works last year had no easy time of it; and the immense labour and anxiety Mr. Wood had to undergo were known to the directors much more than to the shareholders, and he was pleased to say they had had admirable results.

The dividend was then duly declared, the clerk announcing that it would be paid on or before Sept. 15 and 16.

A vote of thanks to the chairman, proposed by Mr. HUGGETT, and seconded by Mr. PICKNELL, closed the business of the day.

WATERFORD PUBLIC LIGHTING.—The Corporation of Waterford have agreed to accept Messrs. Anderson and Jones's offer for the city lighting at £4 4s. per lamp per annum, being an increase of 6s. 6d. per lamp over the price paid last year.

BRISTOL UNITED GASLIGHT COMPANY.

The Half-Yearly Meeting was held on Thursday, Sept. 18—Mr. W. H. NAISH in the chair.

The SECRETARY (Mr. H. H. Townsend) read the notice convening the meeting, after which the following report was presented:—

The accounts of the company for the past half year which have now been read to you show that the continuance of the high price of coal and other material, as well as the increase in the cost of labour, have again necessarily increased the manufacturing expenses. The larger revenue which has been obtained from the higher prices the company has charged for the products of its manufacture has not been sufficient to compensate for the loss on the other side of the account. Your directors are extremely unwilling again to raise the price of gas, but they think it right to inform the proprietors and the public that if the existing difficulties as to cost of manufacture continue, they will be obliged, in common with most other gas companies, to make further advance in price, which is obviously the only means in their power of securing the value of the property of the company. There remains, however, this consolation to the shareholders, that the ordinary dividend may now be maintained by taking from the reserved fund the sum of £6633, and that after the withdrawal of this sum the fund will still possess to its credit the sum of £16,118. The bill promoted by the company in the past session of Parliament, and which received the Royal Assent on the 26th of May last, provides amongst other things (sec. 8) for raising by the issue of new shares or stock the sum of £250,000; and the company may also borrow (clause 13) on mortgage bonds a sum not exceeding £62,500. To meet both the immediate and prospective expenditure on account of capital, an extraordinary meeting of proprietors (in accordance with the provisions of the Act of Parliament) is summoned to be held after the conclusion of the business of this meeting, to give sanction to the directors to increase the capital of the company by the sale of new stock in such manner and on such conditions as will then be explained. Power is also given by the new Act (clause 6) for the purchase of additional land. The 18th section provides that the number of directors shall be twelve, but it shall be lawful for the company to reduce that number, provided the reduced number be not less than six. The 19th section repeals the section of the former Act, which limits the remuneration to the directors to the sum of £400 per annum, and makes it lawful for the company at any general meeting to determine what amount of remuneration shall be paid to the directors. This clause will probably receive the attention of the proprietors at the present meeting. There are also clauses regulating the purity, illuminating power, and pressure at which the gas is to be supplied. The Companies Clauses Amendment Act, 1871, is with other Acts incorporated with your Act, and this requires that the accounts of the company shall in each year be deposited with the authorities on a special form prescribed for the purpose. The new tank and gasholder at Barton Hill is in a satisfactory state of progress, although your directors are as yet not certain that it will be available in time for use in the coming winter. Additional purifiers and scrubbers have also become necessary, and these are in process of construction. Four of the directors retire at this meeting by rotation—viz., Mr. Metivier, Mr. Mogg, Mr. Naish, and Mr. Powell, the whole of whom are eligible for re-election. Mr. George Thomas, one of the auditors, also retires by rotation, and is eligible for re-election. The directors recommend that a dividend at the rate of 10 per cent. per annum be declared, and made payable at the bank of Messrs. Cave, Baillie, and Co., Bristol, on and after Monday, the 29th day of September inst., subject to the deduction of income-tax.

The CHAIRMAN moved the adoption of the report. In doing so he said he thought he never rose to propose a resolution of the kind with more anxiety. The company were not enjoying that unclouded sun of prosperity which had shone upon them for many years; in fact, the reports of previous half-yearly meetings had been of so favourable a character that they had almost become monotonous. It seemed now that they were not to enjoy that state of things any longer, but that a great calamity—for he could call it nothing less—in the extraordinary rise of coal had overtaken them, as it had almost every person in this kingdom. Every one must suffer from it; but it pressed with peculiar force upon gas companies, because it was really the raw material from which they produced the article they traded in. The rise in price had been equal to at least 100 per cent. on all the coal bought by this company. During the last half year the extra cost was £21,000, and the extra increase of wages £1800, consequently they had had to contend with very extraordinary and peculiar difficulties, difficulties which no foresight could have anticipated, and no human ingenuity could have prevented. The report stated that in consequence of this the directors were obliged to draw on their reserve-fund to maintain the dividend. Of course; this was most undesirable, but the reserve-fund was composed of the legitimate profits made in former half years, which had been invested, and therefore they were entitled to it. They were not at all singular in this matter, for he had just heard of a large company in the north which had drawn £13,000 out of their reserve-fund to enable them to maintain their dividend. Some companies had no reserve-fund, and in one important town a large advance in the price of gas had been made lately in consequence. The advance in the price of coal was a public calamity, for it was a thing which would be felt by the most humble member of society. As regarded gas companies, it prevented their progress and profitable working, and pressed upon them with peculiar force. There were, however, circumstances in connexion with this company that were of a cheering character. They had obtained their Act of Parliament, and from that Act many objectionable provisions had been excluded which were to have been forced upon them, and which he considered prejudicial to their interests; and he thought they had now a tolerably fair Act of Parliament. The directors were increasing their machinery, and were introducing an apparatus concerning which their engineer had every anticipation of success. It would remove from the gas the remaining traces of ammonia, the gas would be purer, and the ammoniacal liquor would be more valuable. Very recently the directors had, in conjunction with the Great Western Railway Company, made arrangements by which they would have coal conveyed to their works, which would be a very considerable saving in the cost of coal, and would, of course, work to the advantage of the company. He was very sorry that they had to report the extraordinary price of coal; but it would be apparent to every gentleman present that the directors had no power to prevent it. It had come upon them like an epidemic disease, or anything else from which they were bound to suffer. The report had entered into several important matters, and among the rest as to the probability of a further advance in price. He did not think it was at all fair, if the present state of things was likely to continue, that the weight of the whole loss should come upon the gas company, or why they should be called upon to bear it.

Mr. F. TERRELL seconded the motion, and it was carried unanimously.

The CHAIRMAN then proposed, Mr. TERRELL seconded, and it was resolved, that a dividend at the rate of 10 per cent. per annum, for the half year ending the 30th of June, be declared, and made payable on and after the 29th of September, subject to the reduction of the income-tax.

The retiring directors and auditor were severally re-elected.

On the motion of Mr. J. LEECH, seconded by Mr. LYDDON, the remuneration of the directors was increased from £400 to £800 per annum.

The CHAIRMAN, on behalf of the board, thanked the proposer and seconder of the resolution and the proprietors generally for the handsome way in which they had treated the directors, and added that, though one of the board himself, he thought the directors had never hitherto had justice done them.

Mr. LYDDON asked the chairman if he was able to say to what extent the increase in the price of gas would go.

The CHAIRMAN replied in the negative, and said the directors were very reluctant to raise the price at all, and would not do it unless compelled.

Mr. LEECH expressed a hope that it would be a long day before the necessity arose.

The CHAIRMAN said he could assure the proprietors that the situation of a director had not been a bed of roses for some time past. They cared less for the price than about getting coal at all. They had been anxious above everything that they should keep faith with the public and keep the lights going in the city, and with that view they had had a very anxious time indeed.

The meeting was then made special.

The SECRETARY read the following report:—

The directors report that this meeting is called together in accordance with the provisions of the 8th section of the Bristol United Gaslight Company's Act, 1873, for the purpose of obtaining the sanction of the proprietors to raise, by the sale of new stock (in the manner directed by the said Act), such amount of additional capital as may be deemed advisable. The demand for gas within the authorized limits of your supply is continually increasing, and to meet this demand there must necessarily be both a present and prospective expenditure of capital. The directors, therefore, recommend that you now authorize them to increase the capital of the company by the sale of new stock to the amount of £50,000, and by the issue of mortgage bonds to such proportional extent as will, after the sale of the new stock, be in accordance with the Act of Parliament. The directors propose to exercise the authority now asked for by the sale of stock or the issue of bonds at such times and in such sums only as the necessity of the company may require; but they do not propose to exercise the whole of this power at once, or at the present time, and they will not fail in this, as in all other matters, to keep in view the permanent interests of the proprietors.

The CHAIRMAN moved a resolution in accordance with the recommendation of the report, and it was seconded by Mr. T. P. JOSE, and adopted without discussion.

On the motion of Mr. OLDLAND, seconded by Mr. STEVENS, the chairman and board of directors were thanked for their services, and the meeting terminated.

ROCHDALE (CORPORATION) GAS-WORKS.

The following is the report of the Gas Committee of the Corporation of Rochdale on their department for the year ending March 31, 1873:—

"*To the Council of the Borough of Rochdale.*

"The Gas Committee present the following report on their department, for the year ending March 31, 1873:—

	Cubic Feet.
Gas made during the year, as registered at the station-meter	221,174,000
Against the production of the previous year of	201,895,000
Showing an increase of	19,279,000

Value of gas sold, after deducting discount	£32,717 3 5
Against last year	31,007 7 11
Showing an increase of	£1,709 15 6
The profits for the year amount to	7,223 9 6
Do. last year	7,010 0 11
Showing an increase of	£213 8 7
The cost of extensions on works on capital account, during the past twelve months, amounts to	11,787 11 8
Consumers new services	674 0 5
For extensions and enlargements of mains in 37 different places	4,131 17 7½
Making total amount expended on capital account	£16,593 9 8½
The number of consumers is	16,519
Do. last year	15,822
Showing an increase of	697

"The past year has been an extraordinary one for gas companies, on account of the difficulty experienced by the majority to get coal and cannel in sufficient quantities; considering this, it is somewhat pleasing to your committee to have to report that, although at times our stock of coal has fallen very low, we have never been actually without it. In regard to cannel the case has been somewhat different. The contractors failed to supply the quantity bargained for within the specified time; however, by arrangements entered into with them, this, instead of being a loss to the town, has been a source of considerable profit. Had your committee enforced the original conditions, no doubt the quality of the gas would have been better, but even in that case the advantage would not have been nearly so great as that resulting from the bargain entered into.

"It is satisfactory to know that both coal and cannel will be delivered for some months to come at the old contract prices. This alone is a saving at the rate of over £20,000 per annum, calculated at present prices.

"Considering the enormous rise in the price of materials and labour, the council will be glad to learn that, in addition to the sum allowed for depreciation of works, the profits payable to the Finance Committee exceed in amount the sum paid over in any previous year. The balance-sheet and profits will bear favourable comparison with any other corporation or gas company.

"In last year's report your committee referred to alterations and extensions proposed to be made in the gas apparatus and buildings, and at the same time intimated that, should any delay occur, the apparatus would not be available for the ensuing winter. The council not seeing it possible to sanction these alterations until after the passing of the Rochdale Improvement Act, the delay did occur. Consequently, on account of this and the rainy season, the apparatus was not completed ready for last winter's use; notwithstanding this, and although frequently there has not been more than five minutes supply in stock, your committee think that there is cause for congratulation that the consumers have had, with few exceptions, an even supply of gas.

"Fully aware of their inability to give a good, pure gas, in sufficient quantity with the old apparatus, the erection of new, on the most approved modern principles, is being rapidly proceeded with, and the whole expected to be in actual work six months hence.

"To economize fuel in heating the retorts, the committee have adopted a setting designed by your engineer, Mr. Samuel Hunter, whereby seven retorts will be heated by one fire.

"The gas will be purified from ammonia, &c., by the new and powerful scrubbers in course of erection, and from other impurities by the large purifiers which are nearly completed.

"The new gasholder and tank, which will nearly double the storeage capacity of the works, bid fair to be very complete pieces of workmanship, and there is every prospect of them being a credit to the engineer and the contractors, both as to quality and cost.

"It is confidently anticipated that the extensions on the present site, foreshadowed in last year's report, will be completed without adding more than £41,000 to the capital account, being the estimated amount as then stated.

"Last, year a sum of £1000, and this year a further sum of £4000, making altogether £5000, have been paid out of revenue towards the cost of renewing old plant.

"The consumption of gas still continues to increase in the same ratio as in previous years, as shown by the foregoing figures.

"The make of gas is now 221,174,000 cubic feet per annum, against 47,775,000 20 years ago, or an increase of 173,399,000 cubic feet.

"During the year the main-pipes in 37 streets or roads have been altered, enlarged, or extended, the principal one being Bluepits main, referred to in last year's report; in each case the actual outlay has been within the estimated cost.

"The amount of money to be borrowed from the Finance Committee, during the year ending March 31, 1874, will be £17,000—viz., £13,000 to complete extensions already sanctioned by the council, and £4000 for ordinary expenditure on works and in main and service pipes.

"*Rochdale, April 30, 1873.*" "WILLIAM SIMPSON, Chairman.

Dr. *Profit and Loss Account, for Year ending March 31, 1873.* *Cr.*

To Gas-rental, general account	£35,352	7	9	By Carbonization—		
Public lamps	1,806	13	2	Stoker's wages	£2,671 8 4½	
Sundry accounts	54	8	4	Coal and cannel	13,859 13 5½	
	£37,213	9	3		£16,531	1 10
Tar and ammoniacal liquor	2,319	16	10	Purification—		
Coke	3,844	9	5	Wages	£368 13 1	
Fitting trade, profits	175	16	11	Lime	118 14 2½	
Sundry profits	14	10	5		487	7 3½
Rents	24	14	6	Yard labour—		
Sale of old materials	649	17	3	Wages	£662 6 10½	
				Horse and cart work	48 2 1	
					710	8 11½
				Wear and tear: Retorts—		
				Wages	£236 8 7	
				Retorts, &c.	288 19 6	
				Castings	41 3 9	
					566	11 10
				Wear and tear: Works and tools—		
				Wages	£389 19 10	
				Iron work	1,141 13 4	
				Joiners, slaters, and masons	383 9 9	
				Oil, paint, and cement	98 8 6	
				Hemp, waste, and lead	52 16 0	
				Water-rent	43 5 2	
				Sundries	95 2 6	
				Depreciation of old works	4,000 0 0	
					£6,204 15 1	
				Less old iron, &c., sold	217 9 2	
					5,987	5 11
				Wear and tear: Mains and services—		
				Wages	£281 15 4	
				Pipes and Castings	730 1 3	
				Sundry materials	28 15 9	
				Lead	21 4 3	
				Paving and cartage	67 8 7	
					£1,129 5 2	
				Less old iron, &c., sold	690 16 9	
					438	8 5
				Meter inspection—		
				Wages	605	10 6½
				Salaries and office expenses—		
				Salaries, &c.	£844 2 3	
				Auditing	56 5 0	
				Stationery	178 15 8	
				Stamps	16 2 6	
				Sundries	1 3 8	
					1,091	9 1
				Miscellaneous expenses—		
				Travelling expenses	£44 10 0	
				Commission, per bank	74 15 6	
				Advertisements, &c.	25 1 0	
				Meter-books	4 15 6	
				Sundries	31 8 7	
					180	9 7
				Rent of land	£137 8 6	
				Rates and taxes	705 0 11	
					842	9 5
				Discounts on gas-rental	£4,306 5 10½	
				Bad debts, estimated	190 0 0	
					4,496	5 10½
				Interest on loan account	£4,101 18 10	
				1-75th part mortgage debt to sinking-fund	97 9 17 0	
				Balance, being profits	7,223 9 6	
					12,305	5 4
	£44,242	14	1		£44,242	14 1

Balance-Sheet, to March 31, 1873.

To Amount on mortgage debt, as per last year's report		£73,488	11	11	
Amount borrowed this year		31,000	0	0	
		£104,488	11	11	
Amount borrowed from depreciation-fund		9,063	2	11	
		£113,551	14	10	
Less 1-75th part of debt paid over to Finance Committee for sinking-fund		979	17	0	
					£112,571 17 10
Debts owing on trade account					1,758 9 5
Bad debts on gas-rental (estimated)					245 9 10
Amount due to Manchester and Liverpool District Bank					5,907 11 6
Balance, being profits					7,223 9 6
					£127,706 18 1

By Value of gas-works, as per last report					£80,626 5 8½
Less amount allowed for depreciation, being 1-75th part of debt		£979	17	0	
Depreciation in value of old works		4,000	0	0	
					£4,979 17 0
					75,646 8 8½
Amount expended from April 1, 1872, to March 31, 1873—					
Extension of gas-mains					£4,131 17 7½
New services					674 0 5
Works in progress—					
No. 3 retort-house					5,824 18 6
Gasholder-tank					391 5 1
Gasholder					44 18 3
Purifying-house					2,739 18 9
Purifiers					920 0 11
Condensers					139 16 6
Scrubbers					232 10 3
Stables					292 14 3
Gas-meter testing apparatus					47 15 0
Experimental apparatus					1 3 0
Boundary wall					9 2 9
Oxide-shed					43 8 5
Parliamentary expenses, proportion of cost, Borough Extension Bill, 1872					1,100 0 0
					16,593 9 8½
Present value of works					£92,239 18 5
Payment made to contractors on account of various works in progress					18,225 7 0
Amounts due—					
Gas-rental		£11,999	7	9	
Public-lamps account		642	11	6	
Sundry gas		1	18	8½	
Sundries ledger		1,736	12	3½	
Fittings ledger		147	10	3	
					14,528 0 6
Stocks, as per details in stock book—					
Coal and cannel		£148	1	3	
Main-pipes		1,339	4	4	
Fitting trade		165	14	10	
Wear and tear—mains, &c.		980	11	9	
					2,633 12 2
Balance, cash on hand					30 0 0
					£127,706 18 1

Total amount of money borrowed			£139,413 2 11
Amount of depreciation-fund	£9,063	2 11	
Mortgage debt paid off from March 31, 1858	26,841	5 1	
		35,904	8 0
Mortgage debt owing March 31, 1873			£103,508 14 11
Depreciation allowed on old works, 1872	£1,000	0 0	
Ditto Ditto 1873	4,000	0 0	
		5,000	0 0

Capital Account, to March 31, 1873.

1844—To amount borrowed from Hand-in-Hand Assurance Society						£27,700	0 0
1845	Ditto	ditto	depreciation-fund	£464	17 1		
1846	Ditto	ditto	various persons			1,750	0 0
1853	Ditto	ditto	depreciation-fund	8,598	5 10		
						9,063	2 11
1853	Ditto	ditto	various persons	£2,000	0 0		
1854	Ditto	ditto	ditto	3,000	0 0		
1855	Ditto	ditto	ditto	9,600	0 0		
1858	Ditto	ditto	ditto	5,500	0 0		
1859	Ditto	ditto	ditto	900	0 0		
1860	Ditto	ditto	ditto	2,000	0 0		
1861	Ditto	ditto	ditto	1,500	0 0		
1862	Ditto	ditto	ditto	6,200	0 0		
1863	Ditto	ditto	ditto	3,200	0 0		
1864	Ditto	ditto	ditto	3,000	0 0		
1868	Ditto	ditto	Finance Committee	2,000	0 0		
1867	Ditto	ditto	ditto	5,000	0 0		
1868	Ditto	ditto	ditto	8,000	0 0		
1870	Ditto	ditto	ditto	10,000	0 0		
1872	Ditto	ditto	ditto	8,000	0 0		
1873	Ditto	ditto	ditto	31,000	0 0		
						100,900	0 0
						£139,413	2 11

1844—By amount paid late gas company, and expenses incident to purchase					£27,700 0 0
1845—By extension of gas-works				£464	17 1
1846	Ditto	ditto		3,756	13 6
1847	Ditto	ditto		1,096	7 9½
1848	Ditto	ditto		509	14 11
1849	Ditto	ditto		567	10 9
1850	Ditto	ditto		643	17 7½
1851	Ditto	ditto		3,908	15 5½
1852	Ditto	ditto		1,415	5 10½
1853	Ditto	ditto		573	17 8
1854	Ditto	ditto		4,441	5 6
1855	Ditto	ditto		7,092	19 0½
1856	Ditto	ditto		2,389	14 1
1857	Ditto	ditto		1,416	18 5½
1858	Ditto	ditto		959	16 11
1859	Ditto	ditto		973	12 4
1860	Ditto	ditto		873	12 3
1861	Ditto	ditto		1,688	16 3
1862	Ditto	ditto		8,283	18 10
1863	Ditto	ditto		2,231	17 9
1864	Ditto	ditto		1,066	0 2
1865	Ditto	ditto		1,233	17 6
1866	Ditto	ditto		693	5 4
1867	Ditto	ditto		2,210	18 11
1868	Ditto	ditto		5,205	3 10
1869	Ditto	ditto		13,239	18 4½
1870	Ditto	ditto		6,297	7 5½
1871	Ditto	ditto		3,953	10 1
1872	Ditto	ditto		2,596	10 0½
1873	Ditto	ditto		16,593	9 8½
					96,381 3 6
Balance					15,331 19 5
					£139,413 2 11

EXTENSION OF THE GAS-WORKS.—The *Rochdale Observer* states that the important extension of the gas-works, from the designs and under the superintendence of Mr. Hunter, the manager of the gas-works, is progressing very satisfactorily. The extension was found necessary—notwithstanding the extension of 1868, which was calculated to meet the wants of the town up to the year 1876—in consequence of the remarkable increase of consumption of gas, which is in excess of the ratio of increase of population. The more important part of the work will be completed in two or three weeks.

CARLISLE (CORPORATION) GAS-WORKS.

At the Ordinary Monthly Meeting of the Carlisle Town Council on the 9th inst.—the MAYOR (Mr. C. P. Hardy) presiding,

The TOWN-CLERK produced the gas and water accounts for the year. The balance of profit upon water supplied was £1724 10s. 10d., and upon the gas £3072 9s. 10d.—total, £4797.

Mr. CALEB HODGSON moved that the accounts of the Gas and Water Works Committee be printed and distributed as usual.

Mr. W. SMITH seconded the motion.

Mr. HARGRAVES: As one of the city auditors, having charge of these accounts, I may be allowed to make a remark or two regarding them. When the accounts are printed and in your hands, you will see that the improvements suggested at the commencement of the year have been worked out. With regard to the water accounts, I would throw it out for the consideration of the council, whether it would not be well to add the total cost of the water supply to the other expenses of the urban sanitary authority. We have nearly 3000 ledger accounts for the supply of water, ranging from 9d. up to much larger amounts. It will be obvious to you that the supply of water belongs to the department of health; and I think we ought to apply our minds to the consideration whether, by some small pence addition to our general rate, which could be laid and collected without any additional trouble or expense, we might not dispense with this very elaborate and expensive system of accounts connected with our water supply. I may add that the auditors have had a very long and arduous task; the remuneration they receive is by no means equal to the amount and nature of their work; but I suppose the office of auditor, like that of councillor, is one which the citizens when called on ought to discharge. The auditors are not making any claim for an additional allowance, but I merely wish to state that the office is by no means a sinecure. There is an item in the gas accounts which I also wish to mention. I refer to our interference with the trade of the town by carrying on the gas-fitting business, and supplying chandeliers and so forth. It will surprise the council perhaps to know that on a business requiring a capital in round figures of £2000, sunk in these fittings, the total yearly profit is only £139, and in that no account is taken of the salary paid to the gentleman who buys and sells these fittings, of the rent of the premises where they are shown, or of the book-keeping in connexion with it. Now, is it worth our while to carry on such a business, especially when, by continuing it, we practically prevent respectable tradesmen engaging in that department of work in a thorough manner? If we give it up, the trade will be taken in hand by persons quite as competent to supply fittings and chandeliers as we are, and though they may desire more profit than £139 on a capital of £2000, still we should be keeping within our own proper functions, and not competing with our own ratepayers in their business affairs. The auditors, I may say, are very well satisfied with the way in which the accounts have been kept, and with the manner in which both Mr. Hepworth and Mr. Armstrong have done their duties.

Mr. TODD quite concurred with Mr. Hargraves regarding the Gas Committee competing with tradesmen of the town. He had long been of opinion that it was not a business which the corporation ought to interfere with.

The MAYOR: I have entertained the same opinion for years, but I never could impregnate the corporation with my conviction.

Mr. HARGRAVES: I give notice that at the next, or at an early meeting of the council, I shall move that our trading in gas-fittings be discontinued.

Mr. REEVES: Would it not be well to ascertain what other gas companies do? In my own case, if I had a gas-fitting job at my house, I should prefer the gas-works men to private workmen, the latter being so inexperienced in such matters.

Mr. HARGRAVES: And for a very good reason. You have starved all others out of the trade. I shall confine my notice in the first instance to gas-fittings.

Mr. GRAHAM: You include pipes and all that sort of thing?

Mr. HARGRAVES: Yes.

The motion that the report be printed was then unanimously agreed to.

[We hope to be able to furnish a copy of these accounts in our next number.]

SWANSEA GAS SUPPLY.

PROPOSED TRANSFER OF THE GAS-WORKS TO THE CORPORATION.

The Monthly Meeting of the Swansea Town Council was held on Wednesday, Sept. 10—the MAYOR (Mr. T. Ford) presiding.

The TOWN-CLERK read the report of the special committee upon the gas supply. It having been intimated to the chairman (Alderman Jenkins) that there was a readiness on the part of the Swansea Gas-light Company to transfer their undertaking to the corporation, the committee recommended that they should be empowered to confer with the company with a view to ascertain the terms on which such transfer might be effected, and that the surveyor should obtain from an eminent gas engineer an estimate of the outlay necessary for the erection of gas-works, and the provision of the requisite apparatus and plant. The committee had received the town-clerk's report, and recommended that it be adopted.

The following is the report of the town-clerk above referred to:—

To the Special Committee of the Local Board on the Gas Question.
Gas Supply.

Gentlemen,—Pursuant to a request that I should report hereon, I beg to state that the Local Board have authority by law to contract for the lighting of the streets, and to provide lamps, pipes, and other works necessary thereto.

If desirable they may themselves manufacture gas, and erect gasometers and other apparatus and machinery for the purpose, as well as purchase or rent land (two acres) on which to establish such manufacture.

After sufficiently lighting the streets they may supply private consumers.

The board, or any person or company with whom they may contract for light, may break up the public streets and lay down and fix pipes, gas-pillars, and other works.

In case of non-payment of gas-rents by private consumers, ample remedies are reserved to the board.

If the board contract for the supply of gas, which probably would be the right course to adopt, a very stringent agreement with heavy bonded security would be necessary, and I should recommend that the ownership of the pipes, &c., should be and continue in the board. (Signed) RICHARD A. ESSERY, Town-Clerk.

Guildhall, Swansea.

To the Special Committee of the Urban Sanitary Authority on the Gas Question.
Gas Supply.

Gentlemen,—In compliance with the requirements of a resolution of the council, at its last meeting, I have further to report on this question.

In directing your attention to my report of May 3, 1872, I beg to state that I have had no occasion, in any way, to alter the opinions I therein expressed.

I am aware that an interpretation of the law affecting the subject, differing from my own, has been given by the chairman of the Swansea Gaslight Company; indeed, I have been told that the powers of the Swansea Improvement Act apply to a portion only of the borough—namely, the town and franchise—and that the same, therefore, cannot be put in operation but in a comparatively small section of the district.

I have not had an opportunity until now of re-asserting a contrary opinion, which I do with deference.

If any doubt existed, I should assert, without fear of contradiction, that the Town Council of Swansea have statutory authority to order that any part of the borough not being within the provisions of the local Act, shall be taken to be within the provisions of such Act, for lighting purposes, and thereupon such part shall be within those provisions as fully as if the same had been originally named in such local Act.

It seems to me that many of the powers already possessed by the council in regard to the manufacture and supply of gas are not only less contracted, but also more extensive (so far, at least, as they come on the borough limits), than those which the Swansea Gaslight Company themselves have under Act of Parliament.

The cost incidental to the erection of apparatus and the laying of pipes, therefore, appears to be the chief matter of importance to be considered by the corporation.

Assuming the gaslight company to be desirous of selling their undertaking, the principal, if not the only advantage of a purchase being effected by the corporation, with its full lighting powers, would be the ready possession of the plant.

An opinion in disagreement from my own having, on the legal point, been expressed by the chairman of the Swansea Gaslight Company, I beg to recommend that counsel's advice be obtained on behalf of the corporation.

(Signed) RICHARD A. ESSERY, Town-Clerk.

Guildhall, Swansea, Sept. 8, 1873.

Alderman JENKINS moved the adoption of the report. He said the committee had given some time to the discussion of the question, and had gone into it very fully, and the result was the recommendations contained in the report. They felt there was not room in the town for two gas companies. Of course, competition in gas, as in everything else, was healthy, and where it existed the consumer was supplied at a cheaper rate than where there was a monopoly; but the committee thought if they could make a satisfactory arrangement with the gas company it would perhaps be advisable to purchase their works rather than to erect new ones. Of course, it would be for the committee to take into consideration the powers which the corporation already possessed; they would not stand in the position of some other company, because they had the undoubted right of erecting gas-works to supply all the public lamps, and of selling and collecting tolls upon their surplus. It had been said from time to time that the Swansea Company were supplying gas at a lower price than many other towns which had equal advantages for its manufacture. It was rather difficult to decide what constituted "equal advantages;" all he knew was that the people of Swansea had to pay very much more than the inhabitants of other towns which were not so favourably situated as Swansea for obtaining a supply of coal. When the question previously came before the council, he had referred to the cases of two contiguous companies in London—the South Metropolitan and the Phœnix. The former erected works of the most approved kind, but without any unnecessary expenditure; while the latter launched into a large expenditure, and the consequence was that the former was able to sell gas at 3s. per 1000, and to divide 10 per cent. among the shareholders, while the latter charged 3s. 9d. per 1000, and could only pay a dividend of 8½ per cent. It might be the case that the Swansea Gas Company had spent more than they ought to have done upon the erection of works—he did not know that it was so—but it would be a question to consider in making overtures for the purchase of the concern. The profits formerly made by gas companies were so large that the Legislature had taken care that they should not exceed 10 per cent., and the consequence was that many of them having a large surplus, and being unable to divide it among their shareholders, instead of giving the public the advantage by reducing the price, had spent it upon costly and unnecessary works. A great many companies throughout the country had recently been obliged to advance the charge in order to keep up their dividends, among others the Birmingham and Staffordshire, which had recently raised the price from 2s. 3d. to 3s. If gas could be manufactured and sold in Birmingham for 3s. he could not think but that—even taking the present high price of iron into account—it might be made and sold at the same price in Swansea, and leave a handsome profit. With respect to the cost of lighting and cleaning the lamps, he might say that he had a list of towns, many of which paid considerably less for this than Swansea, though he must admit that some of them paid as much as Swansea had hitherto been doing—namely, 15s. per lamp. Out of 27 towns included in his list, six paid 15s., and the other 21 paid from 8s. 9d. to 14s. Mr. Jenkins concluded by moving the adoption of the report.

Mr. T. DAVIES seconded the motion.

Mr. J. ROGERS thought the corporation had quite enough to do without undertaking the manufacture of gas. Gas manufacture was in a transition state, and they did not know what a day might bring forth. He thought it would be the height of madness for the corporation to have anything to do with it.

Mr. T. DAVIES was surprised that Mr. James Rogers should be so shocked at the idea of the corporation undertaking the manufacture of gas, when he had himself just before given notice of his intention to move that they should undertake the keeping of baths. He (Mr. Davies) could not see why they should not do both if it would be for the public advantage. He cordially supported the resolution.

Mr. GLASBROOK said he was one of the fortunate owners of gas shares, but he should be very glad to sell them to the mover and seconder if they wanted to buy. He could assure them they did not pay anything like 10 per cent.—hardly more than half as much.

Mr. E. DANIEL was glad to find from Mr. Glasbrook that the shareholders were willing to dispose of their shares; he hoped it was a sign that the two parties would be able to come to terms.

Alderman ROGERS thought the corporation had plenty of work on their hands already. He believed that before long science would discover a means of producing gas at a much less cost.

Mr. GLOVER said the request of the committee seemed so reasonable that he had great pleasure in supporting the proposition.

The MAYOR did not think the resolution bound them to anything, and hoped it would be passed unanimously. It was due to the ratepayers and burgesses outside—who were moving in the matter, and were really putting pressure upon the council—that they should do what they could to get gas at as reasonable a rate as possible. They felt they had been paying too much for their gas altogether, and he believed the supply would be better managed and decidedly cheaper if it was in other hands than the present.

The resolution was carried by a majority of 9 to 8.

GLASGOW (CORPORATION) GAS SUPPLY.

A Meeting of the Glasgow Town Council was held on Thursday, Sept. 18—the LORD PROVOST in the chair.

After the transaction of some preliminary business, the Gas Committee's minutes were taken, comprising the report by the committee to the council. This report was as follows:—

The committee beg to submit to the Town Council the balance-sheets for the year ending with June 30, 1873, being the fourth year in which the gas supply has been in the hands of the corporation. The profits on the revenue or working account amount to £33,177 7s. 11d., as compared with £27,768 4s. 10d. of the previous year; and after writing off £3158 12s. 6d. to capital for depreciation, the sum to be carried to profit and loss account amounts to £30,018 15s. 5d., to which falls to be added the balance from previous years, £13,732 2s. 11d., making £43,750 18s. 4d. The committee had to meet the following requirements during the year, viz.:—1. Annuities, £34,183 2s. 6d.; 2. Interest on mortgages, £16,714 2s. 2d.; 3. Sinking-fund, £4598 1s. 4d.; making a total of £55,495 6s.; and, deducting from this the above sum of £43,750 18s. 4d., there remains a deficiency of £11,744 7s. 8d.

The committee regret this result, which has arisen from the high price of coal and other materials used in gas manufacture. During the past year the increase in price of coal alone has been upwards of £37,000, and the coal contracts which have been entered into for the supply required during the next twelve months are at much higher rates than those of last year. The rise in the price of cannel coal has been greater than on common coal, and it may be stated that during next year the cost will be about £70,000 more than during the year 1871-72, when gas was first reduced to 4s. per 1000 cubic feet. This increase is equivalent to 1s. 2d. per 1000 cubic feet of gas sold. Having these facts in view, the committee have no alternative but to recommend that a considerable increase be made in the price of gas. At present the corporation cannot exceed the maximum price of 4s. 7d. per 1000 cubic feet, prescribed by the Glasgow Corporation Gas Act, 1869, but that price is insufficient to meet the largely increased cost of production. It will therefore be necessary to take advantage of the Gas and Water Works Facilities Act, 1870, Amendment Act, 1873, passed during the last session of Parliament, to obtain authority to increase the maximum price prescribed by the Act of 1869, and to charge such a rate as will meet the cost of production. In the meantime the committee have to recommend to the Town Council to advance the price of gas to 4s. 7d. per 1000 cubic feet, such advance to take effect as from the date of last survey, and to continue until further notice. The amount of capital borrowed during the year was £114,482, making the addition to the mortgage debt since the works were acquired by the corporation £340,542. The consumption of gas has increased 6·7 per cent., being for 1872, 1,227,229,000 cubic feet; 1873, 1,310,100,000 cubic feet.

The committee also reported that the extensive new works in course of erection at Dawsholm were now nearly completed, and there was every reason to hope that they would be in operation this winter. The minutes of the committee, of date Aug. 28, contained a recommendation by the sub-committee to the effect that a sum of £3000 should be offered for the purchase of the Rutherglen Gas Company, except the heritable property belonging to the company, and the gas-works.

The LORD PROVOST moved the adoption of the minutes and the report, at the same time expressing the regret of the committee that the necessity had arisen for increasing the price of gas, and his hope that when the Dawsholm works were completed the cost of production would be diminished.

Baillie MOIR seconded the motion.

Mr. M'EWEN criticized the accounts at some length, and moved an amendment remitting them to the committee for further consideration, but after a long debate the amendment was withdrawn, and the motion was carried.

At the meeting of the Glasgow Town Council, on the 11th inst., Mr. Martin gave notice of the following motion:—"That a return be furnished to this board of the loss the Gas Committee has sustained through the non-payment by the upper and middle classes of their gas accounts from the 1st of July, 1870, to the 30th of June, 1873; also, that a return of the loss sustained by the said committee from non-payment on the part of the working classes, or those who have to give deposits of money as security of their gas accounts, from the 1st of July, 1870, to the 30th of June, 1873; and that an account be rendered to this board of the interest and compound interest accumulated on the said deposits for the last three years from the 1st of July, 1870; and also the amount of money the Gas Committee has received from builders and others for the last three years, dating from the 31st of July, 1870, to the 30th of June, 1873, for supplying and fitting in pipes in connexion with their properties which were supplied by the old gas companies free of charge."

BOLTON (CORPORATION) GAS-WORKS.

Report of the Gas Special Sub-Committee (appointed Aug. 11, 1873) to the Gas Committee of the Corporation, presented on the 8th of September inst.:—

"*To the Gas Committee.*

"Gentlemen,—The first financial year, since the gas company's works were transferred, having expired on the 30th of June last, we have the pleasure to report that the net profit of the undertaking on that period amounts to £15,677 0s. 6d., as per balance-sheet annexed.

"The enhanced value of residual products has largely contributed to this result, the increase under that head being £5997.

"The gas-rental has increased by £2282 18s. 8d.

"The *production* of gas this year has been 6½ per cent. more than last year; the quantity of gas made has been 359,102,000 cubic feet; of which 319,909,000 cubic feet have been *sold;* the remaining 39,193,000 cubic feet (10·82 per cent. of the quantity made) having been *used* at the works and offices, and lost in distribution.

"In consequence of insufficient pressure in some districts, a considerable length of new and larger mains has been laid, at a cost of £6808 11s. 3d.

"The single-lift gasholder in Lum Street, with a capacity of 400,000 cubic feet, being defective and much worn, is in course of replacement by a telescopic gasholder, capable of containing a million cubic feet; which it is hoped will be ready for use in the ensuing winter.

"A tank for a gasholder of 880,000 cubic feet capacity is in course of construction in Spa Fields, and is expected to be ready for a holder next summer.

"We recommend—

"That the revenue account be now charged, and hereafter annually, with a sum equal to 2½ per cent. on the permanent value of works and plant in respect of depreciation, and placed to the credit of capital account, and that the cost of all renewals of plant be charged to capital account.

"That £5000 be set apart out of this year's profits as a reserve-fund; and

"That the £5922 12s. 8d. which remains, after deducting £4754 7s. 10d. for depreciation and £5000 for reserve-fund, be placed, in compliance with the Bolton Corporation Act, 1872, 'to the credit of the general district rate of the borough and the Rumworth district rate, in such proportions as the council shall determine.'

"The Bolton Corporation Act, 1872, provides that the annuities may be redeemed by means of a sinking-fund extending over 75 years, at 25 years purchase, amounting to £361,506 2s. 11d.; and the amount of loans contracted this year is £27,082; making a total liability on capital account at June 30, 1873, of £388,588 2s. 11d.

"All money borrowed for the purposes of the gas undertaking is to be repaid by sinking-fund.

"The sinking-funds will commence in 1875, when the sum of £4820 (being 1-75th part of £361,506, the redemption value of the gas annuities), and the further probable sum of £583 (being 1-75th part of £43,750, new mortgage debt), together £5403, will be a charge upon the profit of that and each future year.

"The capital invested in permanent works, consisting of land, buildings, and plant, at June 30, 1872, was £190,175 13s. 1d.; and this year there has been expended the sum of £11,071 16s. 5d.; making altogether the sum of £201,247 9s. 6d.

Your sub-committee desire to state that the works and plant are in good order.

"On behalf of the sub-committee,

"JOHN GREEN, Chairman.

"*Bolton, Sept.* 3, 1873."

Dr. *General Statement, for the Year ending June 30, 1873.* *Cr.*

Receipts.			Payments.		
To Balances—			By Capital account—		
The directors of the Bolton Gas Company, viz.—			The directors of the Bolton Gas Company, viz.—		
Balances in the hands of the gas company at June 30, 1872		£15,771 17 0	Amount expended on new works to June 30, 1872, out of the balance standing to the credit of the reserve-fund		£2,488 3 1
Amount expended on capital account in new works		2,488 3 1	Revenue account—		
Total balance in favour of reserve-fund		£18,260 0 1	Balance of law expenses obtaining the Act of 1872	£139 16 2	
Revenue account—			Salaries of the directors, quarter year	50 0 0	
Interest allowed by bankers to Nov. 5, 1872	£59 7 3		Printing	11 18 6	
Less commission "	19 13 6		Casual expenses	1 5 0	
		39 13 9		£202 19 8	
		£18,299 13 10	Less included in directors account as payment to be made	200 0 0	
Capital account—					2 19 8
Loans, ordinary	£20,000 0 0				£2,491 2 9
Annuitants bonus (as loans)	7,082 0 0		Capital account—		
		27,082 0 0	Bonus of 40s. per share on 11,375 shares		22,750 0 0
Revenue account—			Interest on 11,375 shares		47 8 6
Gas rental	£54,008 4 3		Revenue account—		
Residual products—			Annuitants—one year's annuity	£14,460 5 3	
Coke	£7,669 6 7		Interest on annuity bonus loans	313 14 4	
Tar	1,864 15 1		Interest on ordinary loans	836 14 4	
Salts and liquor	3,267 6 11				15,610 13 11
Spent lime	239 18 7—13,041 7 2		Revenue account—		
	£67,049 11 5		Cannel and coal	£22,355 9 6	
Rents of meters on hire	391 13 8		Wages of workmen	4,138 16 4	
Sundries	94 16 1		Lime and purifying	1,276 13 7	
Rents	159 10 0		Retorts	1,239 2 8	
Fees for transferring annuities	4 5 0		Water	134 1 2	
Bank interest	£117 2 5			£29,144 3 3	
Less commission	81 5 1— 35 17 4		Repairs	4,801 2 2	
	£67,735 13 6		General expenses	126 10 9	
Meters and fittings	9,848 11 1		Rates and taxes	1,223 3 3	
		77,584 4 7	Chief rent	160 11 0	
		£122,965 18 5	Office expenses	521 13 5	
Deposits—			Bad debts	127 18 1	
To sums received from depositors		1,833 12 0	Law expenses	11 2 2	
			Salaries	2,497 16 9	
				£38,614 1 3	
			Meters and fittings	7,671 14 6	
				£46,285 15 9	
			Depreciation 2½ per cent. upon £190,175 13s. 1d., 1 year, transferred to the capital account	£4,754 7 10	
			Reserve-fund account, set apart for contingencies	5,000 0 0	
			District rate account, for profit	5,922 12 8—15,677 0 6	
					61,962 16 3
			Capital account—		
			Works and plant, viz.—		
			Land and buildings	£117 3 6	
			Tank	1,163 8 4	
			Gasholder	77 0 0	
			Apparatus	17 15 0	
			Scrubbers	467 1 11	
			General expenses	71 0 0	
			Sidings	208 13 2	
				£2,122 1 11	
			Mains	6,808 11 3	
			Meters for hire	2,209 16 6	
				£11,140 9 8	
			Less old metal sold	68 13 3	
					11,071 16 5
					£113,933 17 10
			Deposits—		
			By repayment to depositors		930 4 6
			Balances—		
			By balances in the bank, and sums owing, including stocks		9,465 8 1
		£124,329 10 5			£124,329 10 5

Dr. *Gas-Works Stock Account.* *Cr.*

Assets.			Liabilities.	
To Works and plant, up to June 30, 1872, amount of capital fully paid up		£187,687 9 3	To Loans (annuitants bonus)	£7,082 0 0
Do., reserve-fund loan		2,488 3 10	Do.	20,000 0 0
		£190,175 13 1		
Purchase-money to redeem bonus charge of 40s. per share	£18,260 0 1			
Reserve-fund balance to make 40s.	4,489 19 11			
		22,750 0 0		
		£212,925 13 1		
Outlay, as per general statement		11,071 16 5		
		£223,997 9 6		
Less revenue account—				
Amount charged for one year's depreciation to June 30, 1872, 2½ per cent. on £190,175 13s. 1d.		4,754 7 10		
		£219,243 1 8		
Floating balances, viz.—				
Stocks and accounts owing	£9,465 8 1			
Reserve-fund	5,000 0 0			
		14,465 8 1		
		£233,708 9 9		*£27,082 0 0

W. C. WILLIAMSON, Borough Treasurer.
H. VERVERS, Engineer.

* MEM.—The works and plant, and the rates of the borough, are subject to the lien of the annuities.

DUNDEE GAS COMMISSION.—At the meeting of the commission, on the 3rd inst., it was stated that the new gas-works were being carried on very satisfactorily in every way; they were being finished in a most workmanlike manner, and would be completed within the time contracted for. On the recommendation of the Finance Committee, it was agreed to borrow an additional sum of £10,000, or such part thereof as might be required.

APPOINTMENTS OF ENGLISH ENGINEERS IN FOREIGN GAS-WORKS.—Mr. W. C. Holmes, jun., of Huddersfield, has lately been appointed assistant-engineer to the Shanghai Gas Company, Limited, China. Mr. Charles H. Hutchinson, second son of Mr. John Hutchinson, manager of the Barnsley Gas-Works, has just received an appointment as engineer to the Athens Gas Company for a term of years.

BRIGHTON GAS SUPPLY.

A Meeting of the Brighton Town Council was held on the 3rd inst., at which the consideration of the report from the Gas Committee, submitted at the meeting of the 25th ult., with reference to the contracts with the two gas companies for the supply of gas to the public lamps in the borough, and as to the effect of certain provisions of the Hove Gas Company's new Act of Parliament, was resumed.

Mr. BASTICK (chairman of the Gas Committee) moved the following resolution:—"That the Brighton and Hove Gas Company, having given notice of their intention, under the powers contained in section 8 of their new Act of Parliament, to charge 4s. per 1000 cubic feet for gas supplied by them to the public lamps, the council hereby require the company to furnish (at the expense of the corporation) each of the public lamps within the western district of the borough with new burners, to consume four cubic feet of gas per hour, and to supply each of such lamps with 15,000 cubic feet of gas per annum, and to light and extinguish the said lamps at the hours specified in the schedule set out at the foot of the Gas Committee's further report presented this day. That the company be informed the corporation are willing that all the other provisions of the late contract, which are not inconsistent with the altered price, and the smaller consumption of gas, shall remain in force." Mr. Bastick said there was little need to supplement what he said last week on this matter. The same remarks equally applied, and the subject was then tolerably well ventilated. The object of the report was to bring down the expenses, by substituting a new burner, so as to consume less gas, and also to lessen the number of hours during which the public lamps should be kept alight. This was all the committee could do at present. By-and-by further efforts would be made and greater alterations would take place. The schedule of hours had been altered in consideration of certain remarks made at the former meeting; and he thought it had been rendered more satisfactory than before. The object of the last paragraph in the report was to make both the Black Rock and the Hove Companies supply the same quality gas and to have the public lamps lighted and extinguished at the same hours, so as to place both on the same footing. Some little objection was raised to this at the last meeting—said to be in the interest of private consumers—but he did not think there was much in the arguments advanced, as the public would be on just the same terms with one company as with the other.

Mr. NEWMAN seconded the resolution, hoping the council would deal with this matter at once, as every week's delay involved an expense of £25 to the corporation.

Mr. REEVES wished to know whether the Hove Company had conceded what the Gas Committee proposed as to the new burner and the consumption of a less quantity of gas. The company said their Act of Parliament allowed them to charge 6d. extra per 1000 cubic feet of gas; did they also admit that the corporation were entitled to break their contract, and to substitute another burner, so as to consume a less quantity of gas?

Mr. BASTICK said the new burner had not been conceded. Indeed, the company had not yet been asked; and this resolution was to authorize the committee to make the proposal.

Alderman ALGER tendered his thanks to the Gas Committee for revising the proposed schedule of hours, as suggested by him at a previous meeting. He thought the amended schedule would give great satisfaction to the inhabitants.

Mr. FRIEND complained that Preston had been placed in an unfair position by the Hove Gas Company, who had altered the word "borough" into "parish" in one clause of their Act. He found also that the company could actually charge 5s. 6d. per 1000 for all gas consumed in Preston.

The resolution was then put and carried.

Mr. BASTICK then moved that a communication be sent to the Black Rock Company, asking them to supply the public lamps on terms similar to those proposed to the Hove Company.

Mr. NEWMAN seconded the motion.

Mr. REEVES thought it was a matter for serious consideration whether the corporation should not hold the Black Rock Company to their present engagement. The contract had yet nine months to run, during which time the company were bound to supply gas 2-candle power in excess of that supplied by the Hove Company under their Act. Consequently, if the corporation released the company from their contract, the public would be losers by reason of receiving an inferior quality gas.

Mr. BASTICK said the Black Rock Company were not tied as to charge by any Act of Parliament. While they were bound to supply the corporation at 3s. 6d. per 1000 up till next June, they were not bound to supply the public at that price. Consequently, if the council compelled the Black Rock Company to furnish gas of a better quality than the other company, they could charge private consumers 5s. per 1000, or any other amount they might think proper.

The resolution was then adopted.

BRIGHTON AND HOVE GAS COMPANY.—The half-yearly meeting of the directors and shareholders of the above company was held in London, on Friday, Sept. 12. The report submitted, after referring to the satisfactory account of the engineer as to the condition of the company's works, went on to state that the directors recommended that the following dividends should be declared:—Upon the original shares at the rate of 7 per cent. per annum, upon the A shares at the rate of 7 per cent. per annum, upon the B shares at the rate of 6 per cent. per annum, all free of income-tax, and to be due and payable on the 19th inst. By the provisions of the Brighton and Hove Gas Act, 1873, the company have obtained power to increase the price of gas in Brighton and Hove to 4s. per 1000 cubic feet for twelve months from the passing of the Act, but during the existence of the increased charge the dividend upon the ordinary capital of the company will be limited to 5 per cent. per annum. The statement of accounts showed that, after paying all expenses, the company had a balance in hand of £5792 7s. 9d., which was ordered to be apportioned in dividends as stated above.

QUALITY OF THE BRIGHTON GAS.—Mr. Moore, the corporation gas analyst, reports to the Gas Committee as follows, as to the illuminating power of the gas supplied to the borough during the month of August:—

The Black Rock Company.

The averaged result of 8 observations gives a value equal to	14·19	in standard candles.
The highest value was	14·30	" "
The lowest	13·84	" "

The gas was always free from sulphuretted hydrogen; other sulphur impurities existed in the proportion of 11 grains in 100 cubic feet of gas.

The Hove Gas Company.

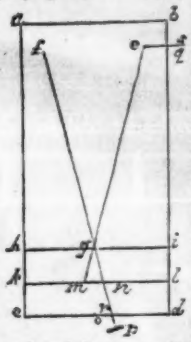
The averaged result of 8 observations gives a value equal to	15·35	in standard candles.
The highest value was	15·82	" "
The lowest	14·65	" "

The gas was always free from sulphuretted hydrogen; other sulphur compounds existed in the proportion of 13 grains in 100 cubic feet of gas.

Remarks.—The apparent irregularity in the figures of the month's testing is due to alteration by the Hove Company in the matter of the test burner. At the beginning of the month, the figures meted high, the gas having since gradually declined in value so as to take full advantage of the test burner. The gas from Black Rock has been, for the last time, tested with the old burner; in future the returns will be made by the new.

A PORTABLE PHOTOMETER.

Complaints are frequently made of a deficiency in the illuminating power of gas, when the fault lies in the neglect of lamps and burners, and often in the fact that the service-pipes are too small to afford a proper supply to the number of burners. To ascertain the illuminating power of gas readily at any place, Mr. Ferdinand Schultz, of Mulheim, had a simple photometer constructed in the shape of a portable box. The plan of the apparatus is shown in the accompanying diagram. The pipe *q* is connected with the nearest burner by means of an india-rubber tube, and the gas is carried to a burner fixed at *e*. The candle is placed on a graduated slide, moveable in the direction from *f* to *g* by means of an iron rod passing out of the box at *r*. Mr. Schultz first tried Count Rumford's plan by fixing a perpendicular rod at *g*, and comparing through a small aperture, *o*, in the back of the box, the shadows thrown from the candle and gas flame on a sheet, *k l*, of ground glass or waxed paper. He found, however, that the reflections were not sufficiently distinct for comparison. He afterwards fixed at *k l* a screen of tinned iron (blackened), with a hole a quarter of an inch in diameter—at a height corresponding with the height of the gas and candle flames. Through this hole both flames throw a circular light on the screen, *k l*, and now by regulating, by means of the iron rod, the distance of the candle from the aperture, *g*, its reflection on the screen, *k l*, is easily made to correspond in intensity with that of the gas flame. The box is then opened, and the distance of the candle from *n* is read on the scale; the proportion of the square of this distance to the square of the distance of the gas flame from *m* gives the illuminating power of the gas.



The box is blackened inside, and has a sliding tinned-iron cover, with a small chimney over the gas flame. The gas is measured by means of an experimental meter, and to prevent fluctuations of pressure a regulator is attached outside the box. As the gas flame makes the interior of the box hot, and so affects the light of the candle, the experiment can only be carried on for a short time.—*Journal für Gasbeleuchtung.*

A LOVER OF DARKNESS.—At the West Riding Court, Halifax, on Saturday last, a young man named Priestley, son of a farmer residing at Ovenden, was committed for trial on a charge of sending anonymous letters to members of the local board, threatening to murder them if they persisted in their endeavours to introduce gas into the district.

ADVANCES IN THE PRICE OF GAS.—The two Birmingham gas companies propose to increase their charges 30 per cent. The price of gas has hitherto been 2s. 3d. per 1000. The directors of the Berwick Gas Company have resolved to raise the price of gas to 8s. 4d. per 1000 cubic feet, making a rise of 2s. 6d. per 1000 cubic feet this year. At Taunton the price has been raised from 5s. to 5s. 6d., and at Marlborough to 7s. 6d. The Montrose Gas Company have made an advance of 10d., the Jedburgh Gas Company have raised the price from 7s. 6d. to 8s. 9d., and the Pollokshaws Company from 4s. 2d. 5s. 5d.

GAS AND WATER SUPPLY OF EGYPT.—In Cairo, gas-pipes have been laid down in all the principal streets, and it is stated, on reliable authority, that these streets are better lighted than those of many European capitals. The principal thoroughfares are supplied with water-mains, and good water is distributed throughout the city.

OXFORD WATER SUPPLY.—At the meeting of the Oxford Town Council on the 15th inst. a formal report was read from the Water-Works Trustees, embodying an application to the Lords Commissioners of the Treasury, asking for the sanction of the transfer of the property of the water-works from the trustees to the Town Council, and also for the power to borrow £30,000 on debentures for an extension of the works. This was unanimously agreed to.

BUENOS AYRES WATER COMPANY.—The report of this company for the half year ending the 30th of June has reached us. From it we learn that 2910 houses, or one-tenth the total number in our city, enjoy the water supply. The committee resolved last year not to extend the supply until drainage works were made. Besides the private houses there are 51 public buildings, 10 plazas, and 12 public fountains supplied. The accounts show that the working expenses average above 70 per cent., which arises, no doubt, from the fact that the works are much in excess of the present requirements. The tariff for consumers rules from 30 dols. a month for a house worth say 800 dols. rent monthly, up to 150 dols. per month for a house rentable at 5000 dols. No fewer than 285 houses have been cut off for failing to pay the water-rate, and 47 have voluntarily asked the board to stop the supply. The dividend for the past half year has been at the rate of 7½ per cent. per annum.

WASTE OF WATER IN DUBLIN.—The commissioners for the township of Pembroke have just issued a notice to the inhabitants, to the effect that, owing to the great waste of water within the township, the daily consumption of which has within the past six months exceeded from 100,000 to 200,000 gallons daily the quantity prescribed by Act of Parliament, the Corporation of Dublin have lowered their valves at the point of supply, thereby considerably diminishing the quantity of water sent into the township, which quantity, though still being 30,000 gallons per day in excess of the statutable allowance, is found to be barely sufficient to meet domestic purposes. Under these circumstances the commissioners state that they are compelled to suspend the usual consumption of water for public purposes until such time as the ratepayers and consumers will aid and assist them in checking the great waste now going on. With a view to accomplish this object the commissioners intimate that they will rigidly enforce the powers vested in them against any person or persons found wasting or misusing the water; and the supply to such person or persons shall, on discovery of the same, be cut off without further notice.

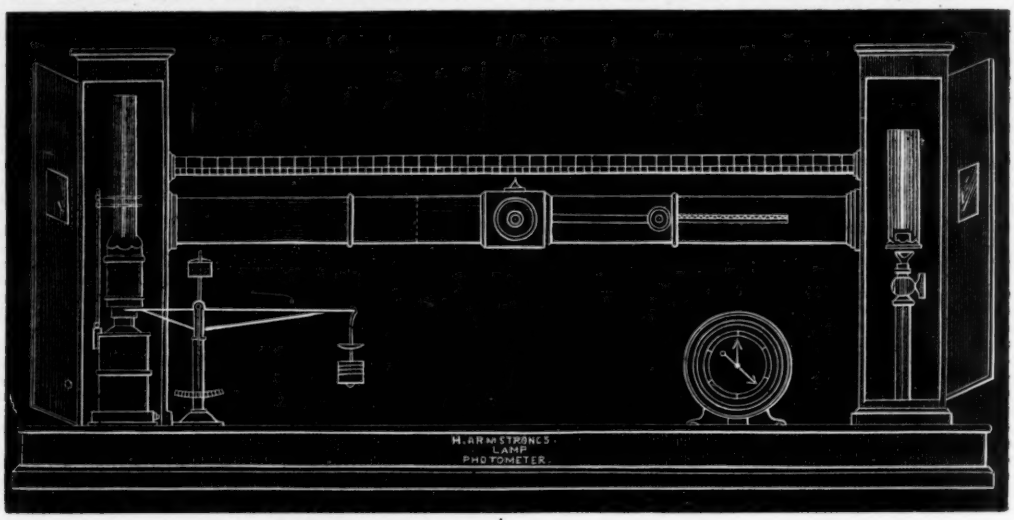
THE A. B. C. PROCESS AT LEEDS.—A report has just been made by a sub-committee to the Streets and Sewerage Committee of the borough of Leeds on the results of experiments which have been made in order to test the relative value of the native guano produced by the A. B. C. process. The committee had six plots of grass land, each half an acre, treated with various dressings, and the total cost of each dressing and value of crop were as follows:—

		Cost of Dressing.	Value of Crop.
1.	Street sweepings	£4 3 6	£2 13 10
2.	Stable manure	2 8 0	3 1 2
3.	Peruvian guano	1 12 10	2 16 7
4.	Native manure	1 11 10	2 6 4
5.	Native guano	1 11 10	2 16 7½
6.	Sewage mud	1 18 10	2 8 0

According to this, the two most profitable dressings were Peruvian guano and native guano, but the surplus from the latter was rather the larger of the two, the yield being the same, but the cost 1s. per half acre less. The crop from Peruvian guano was the more abundant, but that from native guano was the better quality. The committee add that, "whilst it is admitted that the Peruvian is exhausted the first year, it is claimed for the native guano that the effect will be seen for one year or more afterwards. The committee propose to test this by allowing the several plots to remain exactly as they now are, without any fresh dressing, and see the result next year."

ARMSTRONG'S LAMP PHOTOMETER.

In introducing to the notice of the gas world this instrument, an engraving of which is given below, it is not intended to claim or to convey the idea of novelty or originality of design. The principle upon which this, as all other photometers now in use, is constructed is, with some simple modifications, that known as the Bunsen arrangement. The inventor, however, believes that the specific form of lamp photometer here represented will be found admirably adapted to meet the requirements of the operator, should such an instrument at any time be required to supersede the ordinary candle test. It will be clear also to every one acquainted with the use of the photometer that this form is equally applicable whether candles or a lamp are employed.



The arrangement, as shown in the engraving, obviates the necessity for the dark room, or any kind of screen whatever, in testing the illuminating power of gas, the light being entirely hidden from the operator's view except as seen through coloured glass in each door of the upright cases, which, subduing the intensity, also prevents the influence upon the disc of any local reflection. The disc is viewed through a sight-hole by one eye only, as in a telescope, and it is thought that by this means a more uniform reading of the tests taken will be the result, and the discrepancies frequently occurring in the observations of different operators upon the same gas will be obviated.

A description of the engraving is scarcely required; a few remarks in reference to the instrument itself may, however, be acceptable. The lights to be compared are placed, as shown, in two end cases, fixed to a frame, and open at top and bottom to admit of the passage of a free current of air. A door is provided in the front of each case, with a square of coloured glass in the centre, and a long tube extends from openings in the insides of the two cases through which the light placed in each passes to the disc. The disc holder and pointer slide to and fro upon the connecting tube, and are moved by a rack and pinion. Over the tube is the scale divided into hundredths on one line and candles on the other. This, together with a Keates balance for adjusting the weight of the lamp, completes the arrangement. It is intended that the lamp in its rising and falling shall make and break contact with an electrical arrangement, which, by giving audible notice of its occurrence, will more correctly determine the period of its adjustment. It is also intended that the sight-hole shall be furnished with a multiplying lens adjustable to all sights, by the aid of which it is believed the operator will the more readily determine the vanishing point. The instrument is made in ebonized wood, with white divisions on the scale.

The mode of operation is as follows:—The gas being regulated to any required consumption—say 5 feet—the lamp is placed in position and allowed to burn for a few minutes; the cotton is then raised or lowered until the tips of the flame stand level with the bottom ring on the chimney glass, which is intended to act as an approximate gauge for the number of candles the light is equal to. The lamp is now placed in equilibrio, and at the same moment the number of grains at which the experiment is to be made are placed upon the scale, which causes the lamp to fall and rest in its position, and effects the required contact with the electrical arrangement, giving notice that the moment for commencing the experiment has arrived. The disc being adjusted to the vanishing point, and the consumption of oil being complete, the time is taken, and the quantity of gas consumed noted.

Manchester Street, King's Cross. H. ARMSTRONG.

INCRUSTATION OF WATER-PIPES.—American fire insurance companies are calling attention to the condition of the water-pipes in Boston. It seems that the water supply is greatly diminished by the incrustations formed on the inside of the iron pipes by the action of the water, so that a 3-inch pipe that has been laid ten years becomes reduced to 2 inches, those of 4 inches to 3 inches, and the 6-inch mains reduced to 5 inches and 4 inches. The *New York Times* says a pipe was recently taken up in Howard Street through which one could not see, though water flowed slowly; and a pipe of 3-inch bore was taken up in Beacon Street, filled up with solid rust.

STAMFORD WATER SUPPLY.—The negotiations which have been in progress between the corporation and the agent of the Marquis of Exeter for the construction of a new reservoir, extending the mains, and leasing the works to the local board, have come to an abrupt termination, the committee who have had charge of the matter for nearly two years having almost unanimously declined to treat further with Mr. Sanderson. It appears that a deputation of the committee have recently had an interview with that gentleman, when they pointed out the impracticability of his requirement that every tenement should be furnished with a meter at a cost of about £3 each; and they further showed that if the stipulation for meters was simply to test the quantity supplied from the reservoirs, that test could be effected by affixing a meter at the outlet of the water. This argument, however, was not admitted, and equally futile was a representation that as the local board would be wholesale purchasers of Lord Exeter's water, it would be of no consequence to the vendor how it was distributed by retail. Mr. Sanderson contended that a meter in each tenement was the *sine qud non* of an agreement; and even to a suggestion that a large cistern for a row of houses, with one meter to show the quantity consumed in the aggregate, might suffice, he gave a decisive negative. After the interview, the clerk received a letter from Messrs. Thompson, Phillips, and Evans, offering, on the part of Mr. Sanderson, to put meters in all tenements under £5 rental, on condition that interest was paid for the outlay. To this it was replied that it would enhance the cost of the water to the poor from 2d. to perhaps 4d. per week; and as at Lincoln, Hull, Grantham, and other places there is a continuous supply without meters, the same system ought to be pursued at Stamford. The committee, feeling that the object of the deputation had failed, and that to consent to the terms proposed by Mr. Sanderson would impose an unnecessary burden on the ratepayers and a heavy loss on the corporation, have resolved to relieve themselves from any further anxiety and trouble on the subject by withdrawing from the negotiation.

Register of New Patents.

1.—HARRISON, C. W., High Holborn, "*Improvements in treating certain gases for lighting and heating purposes, and in combining atmospheric air therewith.*" Patent dated Jan. 1, 1873.

This invention consists in carburetting (or increasing the proportion of carbon in) hydrocarbon gases, and afterwards mixing or combining therewith atmospheric air. By mixing atmospheric air in limited proportion with hydrocarbon gas an increased volume of gas is obtained without any additional cost, whilst at the same time its light or heat-giving power (according to the purpose for which it is used) is materially increased, also the gas, by being thus brought nearer to the specific gravity of the air, leaks to a much less degree than it otherwise would do during its passage along the pipes whilst being conveyed from place to place, thus effecting a very great saving. As the addition of air to hydrocarbon gas is thus attended with such great advantages without any additional cost, it is obvious that an invention enabling at a small expense a much larger proportion of air to be combined with the gas than otherwise could be done, must be of immense commercial importance, as every foot of gas thus obtained is almost clear gain. This is the object of the present invention, and is accomplished by first carburetting the hydrocarbon gas, and afterwards combining or mixing therewith the atmospheric air. The gas thus carburetted will be found to bear a much larger proportion of air mixed with it than it otherwise would. The cost of carburetting the gas is very small compared with the value of the increased volume of gas thus obtained. The method preferred is that of passing the gas through a hydrocarbon liquid, during which passage it vaporizes and takes up or becomes impregnated with a portion of the liquid, and thus becomes enriched in carbon. The mixing of the air with the carburetted hydrocarbon gas may be accomplished by pumping. The proportion of air to be combined or mixed with the gas should be determined by the method described in the invention No. 2847, dated Sept. 26, 1872.

7.—PEEBLES, D. B., Fountainbridge Works, Edinburgh, engineer, "*Improvements in apparatus for regulating and supplying illuminating gas.*" Provisional protection only obtained. Dated Jan. 1, 1873.

This improved regulating apparatus comprises a regulating chamber, within which all the working parts are contained, and into which the gas from the receiver or supply-pipe is admitted through a valve aperture that is more or less closed by a conical or conoidal valve, the gas passing onwards from the regulating chamber by a pipe or pipes to the burners. The regulating chamber consists of rigid disc-shaped top and bottom, connected by a band of a suitable flexible material, such as leather or skin, so that if the internal pressure should exceed that of the atmosphere, together with the weight of the top and of any load that may be applied to it, the top can rise and the chamber expand. The inlet-valve is fixed on a horizontal spindle, which is screwed to work in an internally-screwed bearing, and which is connected to the moveable top of the chamber, so as when the latter rises to turn the valve in the direction for closing it. In supplying the gas in carriages or other locomotive structures each burner or set of burners is held by a spring to obviate the liability to the putting out of the light by a sudden jerk.

12.—DECASTRO, D., Mortlake, Surrey, "*Improvements in gas-meters.*" Patent dated Jan. 1, 1873.

This invention is applicable more especially to wet gas-meters constructed according to patent No. 711, dated March 9, 1869, according to which a tube is provided having a partition fixed diagonally in the interior, and two apertures made therein, one on either side. The tube is held vertically at its ends by two stuffing-boxes fixed on the upper and lower parts of the chamber in which it is placed. The upper end of the tube communicates with the square front of the meter, and the lower end with the overflow or waste-water chamber. The lower part of the chamber containing the tube communicates with the drum-case below the water-line, and the upper part of the tube chamber with the gas passage from the inlet-pipe. This improved method consists in holding the tube vertically at its ends without the use of stuffing-boxes for the purpose. In order to do this the whole or part of the top and bottom of the chamber (which it is preferred to make semicircular in plan) in which the tube is placed are formed of lead, pewter, or other substance sufficiently flexible and ductile, and the ends of the tube are fixed into the flexible top and bottom of the chamber described, preferably by soldering. By this arrangement the flexibility of the top and bottom of the chamber is sufficient to allow the tube to be raised or lowered until it has been adjusted to its proper height, and their rigidity is sufficient to retain it in such position when adjusted.

In order to convey the gas into the upper part of the chamber containing the tube already described, instead of using a pipe outside the chamber and communicating with its upper part for the purpose, an independent pipe is sometimes used inside the chamber, its outer end being fixed in the bottom (or communicating with the gas space in the drum), and its inner end opening into the upper part of the chamber, or an opening is made directly from the gas space in the drum to the upper part of the chamber. In order to convey any surplus

water from the adjustable tube, an independent pipe is attached to the lower end of the tube outside the chamber, and this pipe is bent so that its lower end may reach nearly to the bottom of the waste-water box.

The adjustable tube first described may be formed of two tubes fixed side by side, having suitable openings in them, instead of one tube having a diagonal partition, or they may be formed of two tubes, one above the other, the top of the lower one being widened out and level, or nearly so, with the bottom of the upper one, the two being connected together by suitable strips or fastenings.

The index of the meter has motion transmitted to it in the ordinary method.

The inlet through which gas is admitted to the meter is formed of a short pipe having a union joint or other attachment at its upper end, and its lower end closed, but an opening is made from its side into a hollow bracket, thus strengthening the pipe. This bracket is open underneath, and is situated immediately over the inlet-valve, which is regulated by a float in the usual way. By this arrangement the passages to the inlet-valve are much simplified, and they occupy less space, so that more room is left for the index and the gear driving it. Sometimes the pipe is arranged directly over the inlet-valve, which rises into it when open, and in this case the pipe is made sufficiently large at its lower end to allow free ingress for the gas round the valve, and partitions are arranged across the pipe to prevent the valve from being interfered with.

33.—HENRY, M., 68, Fleet Street, London, patent agent, "*An improved water-gauge.*" A communication. Patent dated Jan. 2, 1873.

The gauge consists of two cocks united by a glass tube held in a protective casing with openings. There is a valve in each cock, which valves, if the tube should break, are caused to close the passage for steam and water by the action of the steam and the water themselves.

38.—BISCHOF, G., Glasgow, professor of technical chemistry, "*Improvements in the purification of water, and in the means and apparatus employed for that purpose.*" Patent dated Jan. 3, 1873.

This invention has reference to the process of purifying water by filtering it through spongy iron, for which letters patent, No. 2156 of 1870, were granted to the petitioner. The present invention consists in causing the water to filter through marble or limestone after passing through the spongy iron, in order to remove the iron taken up by the water. Filters for this purpose are described as consisting of a vessel with perforated bottom containing the spongy iron placed above a vessel with perforated bottom containing the marble or limestone, and arrangements are described whereby the water, after filtering through the spongy iron, is made to rise to the level of the spongy iron again before flowing down on to the marble or limestone, in order to keep the spongy iron always immersed. Animal charcoal may also be employed in place of the marble or limestone for retaining the iron.

44.—BUCKLEY, S., 8, Tower Street, Hyde, Chester, tool maker, "*Improvements in the construction of a combined pipe-wrench and cutter.*" Patent dated Jan. 4, 1873.

The features of novelty which constitute this invention are the construction of a teethed jaw forming the segment of a circle projecting from the enlarged end of the barrel, and the application of a claw or claws, enabling it to answer as a one-wheel cutter and wrench with one claw, and as a three-wheel cutter with the other claw.

45.—CROLL, A. A., Coleman Street, London, civil engineer, "*Improvements in means or apparatus for the distillation of ammoniacal liquors, which improvements are also applicable in the distillation of other liquids, and in the concentration of soluble salts.*" Patent dated Jan. 4, 1873.

The invention relates to means by which the liquid matter to be acted upon is received into the upper of a series of evaporating trays or chambers, and in overflowing that passes to the next, and thence to each in succession, until it arrives at the lowest, which is that immediately over and surrounding the fire. The heat from the fire passes up through the centre of the lower chamber, thence radially over the liquor in that chamber and under the chamber next above, and thence under and over each to the outlet. The fire-door of the furnace is sealed after the supply of each charge to cause all the atmospheric air to pass through the fire, and such air is forced upwards or forwards, where the vapour has to pass through another media, as in the manufacture of sulphate of ammonia, or it may be drawn by vacuum.

59.—FOULIS, W., Glasgow, "*Improvements in charging and drawing retorts, and in the machinery or apparatus employed therefor.*" Patent dated Jan. 6, 1873.

This apparatus consists essentially of one, two, or more hydraulic cylinders connected together by telescopic joints, and situated horizontally. These hydraulic cylinders or tubes are mounted upon a platform or carriage which traverses on wheels a line of rails situated parallel with the charging ends of the retorts. The outer hydraulic cylinder or tube carries a "scoop" or "scoops" (or other similar appliance) in which the charge for the retort is placed.

In charging a retort the hydraulic apparatus is connected to a water-pressure main or pump, and the water under pressure being admitted to the hydraulic cylinders or tubes opens them up telescopically, so that the scoop with the charge is advanced into the retort. When the scoop is thus situated it is rotated on its axis, so as to deposit the charge, by means of a short hydraulic cylinder, a rack, and pinion, or the mechanical equivalent of either of these acting upon the cylinders or tubes so as to rotate one or more of them together with the scoop. When the charge is thus deposited in the retort the scoop is withdrawn. This may be effected either by causing the water to act upon the tubes in the reverse of that before mentioned, or chains, racks, and pinions, or other apparatus commonly used for drawing back hydraulic rams, may be adopted. The apparatus is so mounted on its carriage that it may be raised or lowered to correspond with any position of the retorts.

The apparatus for drawing the retorts also consist of one or more hydraulic cylinders or tubes mounted in the manner described with reference to the charging apparatus, but in place of the scoop or scoops a coke-drawing "rake" or "rakes," or their equivalent, is fixed thereto, and the hydraulic pressure is applied so as to pull the coke out of the retorts. It is obvious that the same apparatus which is used for charging may also be used for drawing retorts by employing either the charging-scoops or drawing-rakes as required. It will, however, generally be more convenient to have separate apparatus for each operation.

The apparatus instead of being actuated by water under pressure may be operated by compressed air or steam or other fluids or liquids, and any number or sets of the apparatus may be mounted on one traversing platform or carriage.

In charging the scoop the coal may be shovelled or tipped into it, or a long hopper, having a bottom capable of being opened at any time, may be brought over the scoop and the charge dropped into it.

80.—LAKE, W. R., Southampton Buildings, London, "*An improved apparatus for manufacturing illuminating gas.*" A communication. Patent dated Jan. 8, 1873.

This is an invention of a carburetting machine. The inventor states that the longer a given quantity of air remains in contact with a corresponding quantity of gasoline the more intense is the mixture of carburetted hydrogen vapour with air. This is so perfectly the case with this apparatus that the gas for a long time does not diminish in illuminating power or condense in cold; it may therefore be used in very long conducting-pipes. The warming of the gasoline which has been deemed necessary hitherto, and which is dangerous, is not necessary. The apparatus is perfectly confined and consequently quite safe, and it is self-regulating. Moreover this gas is much cheaper than coal gas.

The apparatus consists of, first, a cast-iron turned cylinder, divided by a partition in two equal parts, the air-pump and the carburetter. Two head pieces support the cylinder and other parts, and are held together by pins of wrought iron. Second, a hollow axle of wrought iron turns in a plummer block and stuffing-box; upon this axle is fixed a screw tumbler, and on its side is a chamber packed with horsehair and wrapped in linen or other porous stuff. Third, a drum with a keyed pulley, pulley-block and weight. On the axle is fixed a small pulley corresponding with the pulley on the drum. A knee, provided with a light valve, establishes the communication of the pneumatic apparatus with the air outside. A vane wheel, which is set in motion by the axle, regulates the motion. A regulator governs the pressure of the gas upon the burners, and by a three-way cock the apparatus is emptied of its contents. The cylinder is fitted to the middle by a funnel, which is stopped by a cock. The height of the naphtha is kept equal in both parts by means of an aperture, and may be seen through a glass tube. The screw drum, which has channels leading to the axle, presses the air taken in the upper part of the cylinder uniformly, not through water as has been the case hitherto, whereby the air was rendered humid, but directly through the gasoline (which in form of gas enters the hollow axle) and thence into the piston packed with horsehair and impregnated with gasoline; from here the gas goes most uniformly to a waste-pipe, and thence to the conducting-pipes. It is only necessary therefore to wind up a weight in order to put the apparatus in motion. The quantity of gas depends upon the size and number of the threads of the screw in the air-pump and upon the quickness of the latter. The air being dry in uniting with the naphtha vapours the mixture of both is far more intense than heretofore.

104.—GEDGE, W. E., 11, Wellington Street, Strand, London, patent agent, "*A new or improved water-meter.*" A communication. Patent dated Jan. 10, 1873.

This water-meter is composed of a closed tank or reservoir, having at its upper part a syphon-pipe for admission of water, and at its lower part a pipe for drawing it off. Within the upper part of this reservoir is a receiver, its bottom carried by a lever, the opposite end of which is counterweighted. This receiver has a funnel-shaped cap, into which dips the syphon-pipe, and which is also provided with a valve carried by a rod resting against the moveable bottom of the receiver. The water from the main having run into the closed reservoir until the compression of air at its upper part will permit no further influx, when the cock on the pipe by which water is drawn from the reservoir is opened, the bottom of the receiver pivots, and the water in the receiver passes into the reservoir, during which movement the lever, striking against a rod, moves an index, and thus registers upon a dial the emptying of the receiver. The moveable bottom, in pivoting, ceases to uphold the valves on the funnel-shaped cap, so that it comes down and closes the communication between the funnel and the body of the receiver, and that the water arriving at this moment from the main is held in the funnel. The water having passed from the receiver to the reservoir, the counterweight again brings up the bottom, the receiver refills, is again emptied, and so on continuously until the cock on the exit-pipe is closed. The quantity of water necessary to overcome the resistance of the counterweight having been ascertained, the number of movements registered upon the dial gives the exact quantity of water drawn from the reservoir.

106.—PRITCHARD, G., of Smethwick, in the co. of Stafford, tube maker, "*Improvements in machinery for straitening, smoothening, and finishing round metal tubes and bars.*" Patent dated Jan. 10, 1873.

According to this invention the tube or round solid bar is passed between a series of rollers in the following manner:—The tube or bar to be straitened, smoothened, and finished according to these improvements is passed between a group of three friction rollers, with its length in the same direction as or parallel with the axes of the rollers. Only one group of rollers, or a series of two or more groups of rollers may be employed. One or more of the rollers must be driven so as to revolve on its axis for the purpose of making the tube or bar revolve, or instead of the tube or bar revolving the whole group of rollers may be arranged so as to revolve around the tube or bar. The machine is arranged in such manner that the rollers can be moved nearer to or farther from one another so as to take different sized tubes or bars, and when in operation they are caused to press sufficiently upon the tube or bar to produce the desired result.

115.—HOLMAN, S., 10, Laurence Pountney Lane, London, engineer, "*Improvements in gas-retort mouthpieces, lids, and fastenings.*" Patent dated Jan. 11, 1873.

This invention consists mainly in a novel method of securing lids (whether of wrought or cast iron) to the mouthpieces of gas-retorts, either with or without the aid of crossbars, and in grooving the bearing surfaces of either the mouthpieces or the lids, and making the lids reversible (when round or oval in form). The lids are made reversible (when used with crossbars) by means of a moveable centre-piece which is so fitted as that it can readily be applied to either side of the lid, and may form any determined proportion of the disc of the lid; the lids are also made with rims considerably wider than the thickness of the disc, faced true on either side with one or more grooves, except when the mouthpiece is grooved, in which case the faced portions of the reversible lid may be faced plain. Hinged staples or catches are used in order to reduce the friction and power required to fasten the lid. These hinged catches work on eccentric pins for either the adjustment of the catch or the fastening of the lid. Double joints with outer jaws of the usual form are made to work with eccentric action by fitting an enlarged pin in the middle portion of the joint and making a hole in it at any determined radius from its centre to receive an ordinary hinge pin, which also passes through the outer jaws of the joint. Suitable lugs are cast on the mouthpieces, instead of fitting wrought-iron lugs fitted in the ordinary way thereon.

118.—JONES, W., of Manchester, in the co. of Lancaster, engineer, "*Improvements in valves for regulating the flow of steam, water, and other fluids.*" Provisional protection only obtained. Dated Jan. 11, 1873.

This invention consists in an arrangement whereby the valve used for regulating the flow of fluids is placed in equilibrium or nearly so.

136.—HOLMAN, S., 10, Laurence Pountney Lane, London, engineer, "*Improvements in apparatus for raising and lowering heavy bodies, particularly applicable to the lids of gas-purifiers.*" Patent dated Jan. 13, 1873.

This invention consists of certain peculiar arrangements for lifting the lids of gas purifiers or other loads by means of elastic or of non-compressible fluids, and consists according to one arrangement of a hollow ram through which the fluid is forced down into the cylinder from above; the lid or load to be lifted being connected to the ram. According to another arrangement no pumping is required, as the lid or load is lifted by a load on the top of an inner ram working within an outer ram in a cylinder. On increasing this load the fluid pressure on the outer ram which carries the lid or load to be lifted is increased, and a consequent lift is obtained.

147.—SALMON, P., engineer, 5, Mabledon Place, Burton Crescent, London, W.C., "*Improvements in steam boilers and oil gas apparatuses, and in oil gas engines and boilers, and in the apparatuses connected therewith, partly to warm, ventilate, and light railway carriages and other vehicles.*" Provisional protection only obtained. Dated Jan. 14, 1873.

First division. Steam boilers and gas apparatuses.—1. The forcing of a requisite

quantity of air into steam-boiler, superheater, or gas generator, to assist the combustion of the gas. Also the option of oil direct to boiler. 2. The conjunction of the two parts, scrubbers and driers, into one part, and change of position. 3. The application of this gas to fire grates, stoves, smelting ironstone and other purposes.

Second division. Oil gas engines and boilers, and apparatus connected therewith.—1. The forcing of a requisite quantity of air into steam-boiler, superheater, or gas generator, to assist the combustion of the exhaust gas, and improved bell-crank valve to regulate combustion. 2. Reciprocating axle to prevent friction in engines and vehicles, and applying leather on edge to tyres of driving tramway wheels. 3. Dividing oil gas engines into two vehicles, to give a free passage through them, and placing engines vertically. 4. The application of gas improvers fitted on the exhaust gas-pipes in the chambers of boilers, and starting tubes with fillers. 5. The option of forcing direct into the steam-boilers of these oil gas engines the requisite quantity of oil and air, and thus dispensing with the gas generator and superheater. 6. The use of these improved gas engines and boilers at fixed stations on the line of route of railways, tramways, or common roads, to supply receivers in vehicles, to actuate power engines by air or steam. 7. Improved unions and apparatus for warming, ventilating, and lighting railway carriages and other vehicles.

154.—Scott, H. Y. D., Ealing, "*Improvements in the treatment of sewage, and of the deposits obtained therefrom.*" Patent dated Jan. 14, 1873.

In carrying out this invention the sewage water is precipitated with quick lime in excess in the first tank. The precipitate thus produced is allowed to subside, and to the effluent therefrom is added soluble salts of cheap metallic oxides, such as the oxides of iron or zinc, in sufficient quantity to precipitate in the second tanks the bases of such salts.

168.—Target, J. L. F., Portsdown Road, London, "*Improvements in treating excreta and sewage matters, and in apparatus employed therein, parts of the apparatus being also applicable to the drying and charring of other matters.*" Patent dated Jan. 15, 1873.

According to the provisional specification, the solid excreta are mixed with a nearly equal weight of charcoal, and about 4 per cent. of coal tar or bituminous substance. The mixture is made into blocks or bricks, which, after being dried, are burnt or charred in a muffle furnace. The vapours and volatile bodies given off from the bricks become ignited, and the products of combustion are conducted by a flue to heat the boilers of a still or other apparatus in which the urine is treated. This utilization, for treating the urine, of the heat given off during or previous to the conversion of the solid excreta into charcoal is an important feature of the invention. The charcoal produced by the burning of the mixture of solid excreta and other substances may be subsequently used as fuel or otherwise.

183.—Scott, H. Y. D., Ealing, Middlesex, "*Improvements in the purification of coal gas.*" Patent dated Jan. 16, 1873.

The object of this invention is the removal of sulphur from coal gas in a cheap and efficient manner. Oxide of iron is heated to redness in a suitable chamber or conduit, and the gas coming from the condenser is passed over it.

It is found that the most suitable temperatures for heating the oxide of iron for the purpose are those varying between a redness just visible in the dark and a low red heat, and that the most convenient form in which the oxide can be used is in small pieces, or in a coarse granulated state. The object in view is to promote the ready permeation of the mass of oxide of iron by the gas, and the exposure of a large surface of the purifying material, so that the whole body of gas may be thoroughly acted upon. The chamber or conduit containing the oxide may be constructed in the form of an iron retort, and two, three, or more of these may be arranged like a bench of ordinary gas-retorts, but connected by pipes, so that the gas may pass through them all in succession. These purifying retorts or chambers may be heated by means of a furnace, the flames of which will play around the chambers containing the oxide of iron, which may be arranged either upon shelves, or simply be placed loosely in the purifying chambers.

The heated iron oxide will act on the sulphur of the sulphur compounds contained in the gas, and will cause their decomposition, the sulphur being made to combine with the oxide of iron, thus leaving the gas comparatively pure from such contaminations.

The oxide of iron may be revivified and used again for the purification of a fresh charge of gas. The advantage of heated oxide of iron over lime consists in this property of ready revivification, and in the greater facility with which it is decomposed by sulphur compounds. Lime may, however, be used in conjunction with the iron oxide for this mode of purification of gas, and it is sometimes found convenient (whether these substances are used conjointly or singly) to subject the gas (after it has been passed through the heated substance as well as before this treatment) to the ordinary processes of removing sulphuretted hydrogen from coal gas.

Other metallic oxides besides iron, and other alkaline earths besides lime, may be used, but they are more costly than these substances, and their use is not attended with any equivalent advantage.

192.—Erskine, F., Salford, and Denby, W. S., Heaton Norris, ironfounders' "*An improved gully or stench trap for preventing the escape of noxious effluvia or gases from drains or sewers, and for preventing the ingress of solid matters into the same.*" Provisional protection only obtained. Dated Jan. 17, 1873.

This invention consists of a peculiarly constructed chamber, into which fluid and solid matters pass through a grating. The solid matters are retained in the chamber, but the fluid passes through the sides to an outer casing, and thence to drain.

199.—Shanks, J., Barrhead, Renfrew, N. B., sanitary engineer, "*Improvements in water supply apparatus for jaw-boxes or sinks, baths, wash-hand basins, open boilers, drinking fountains, and street or court wells.*" Provisional protection only obtained. Dated Jan. 17, 1873.

An important feature of this invention is the arranging of the primary outlet from the service-pipe in the form of a float-cock in a closed chamber. In the case of a jaw-box or sink the closed chamber is formed as a contiguous compartment at one side, and a curved discharge spout or crane proceeds from the top or side of the compartment so as to overhang the jaw-box. For discharging the water from the closed chamber there is fitted therein a water-lifter, which comprises a fixed vertical cylinder, to which the discharge-spout is attached. The lifting detail is a disc with a central opening, through which there passes a rod connected to a hand lever, the bottom of the rod having on it a small flange or disc, which lifts the main disc when the rod is raised. When the lifting-disc is raised rapidly by the hand-lever, the water above the disc in the cylinder is driven out of the discharge spout, and water enters the cylinder beneath the disc from the chamber, this water getting above the disc, through the central aperture, when the rod is pushed down. In the other applications the parts are slightly modified to suit each case.

202.—Gedge, W. E., 11, Wellington Street, Strand, "*A new or improved system of obdurator cock for liquids, gases, and vapours, and an improved aërating faucet or vent-peg of similar construction.*" Provisional protection only obtained. Dated Jan. 17, 1873.

This invention consists in the use of an obdurator or stopper fixed by a screw to the plug of the cock and surrounded by an india-rubber washer. This obdurator is raised and lowered to open or close the cock by a key which lifts and lowers the plug and obdurator by means of a screw thread on the upper part of the plug.

205.—Williams, M., Wigan, "*Improvements in the manufacture of gas.*" Patent dated Jan. 17, 1873.

The manufacture of this gas consists in forcing or injecting superheated or other steam or oleaginous substances, more particularly hydrocarbon oils and substances of a like nature, such as tarry substances and products, residues of coal oil, or petroleum oil, or essential oils, or spirits in their natural state or in the form of vapour, together or simultaneously through red-hot fire-clay or iron retorts, filled or partially filled with coke, charcoal, or other suitable substance of like character. The retorts used are similar to those now used for gas-making. The steam and oils are decomposed and rapidly converted into gas, very rich in carburetted hydrogen, and of high illuminating power. It can be used separately as a means of illumination, or mixed with coal, cannel, or other gas, in any proportions to increase its illuminating power. The gases can be readily mixed, and the illuminating power almost regulated at will by using a part of the retorts for this process and the other part of the retorts for manufacturing gas in the ordinary way, at the same time, and allowing the gases from both to become mixed in the hydraulic main and purified together. The result of this mixing will help materially to increase the quantity of coal gas by carrying off more rapidly the heavy hydrocarbons, and will lessen the production of tar.

When both are carried on at the same time, it will be found to be more economical than the old processes of making gas, as the quality of the coal used need not be of the best, but only such as to produce a good coke, and in quantity only enough to produce sufficient coke for firing and use in the retorts.

The advantages gained are—rapidity and economy in the production of gas of high illuminating power, which, when mixed with ordinary coal gas, may be used to improve and regulate its quality at will; great permanency and freedom from sulphur and other impurities, while the means of producing the improved gas may be adopted at any gas-works with but slight expense, without interfering with or spoiling the retorts for distilling coal gas; and as there is less material, apparatus, and labour necessary, and a better means of utilizing the tar and coke, a great saving in cost, and a far better gas is obtained by this method than by the distillation of coal or cannel alone.

210.—Davies, R. V., Old Street, St. Luke's, zinc worker, "*A new or an improved apparatus for preventing the waste of water used for water-closets and domestic purposes.*" Provisional protection only obtained. Dated Jan. 18, 1873.

The novelty in this case consists of the cylindrical shape and the material—zinc—of the water-chamber, its simplicity of construction, and in having self-acting valves, which prevent more than a certain quantity of water being used at one time.

APPLICATIONS FOR LETTERS PATENT.

2936.—Bois, L., Paris, "Improvements in the manufacture of lighting gas, and in apparatus employed therein." Sept. 6, 1873.
2951.—Wilson, A. F., Buckingham Street, Adelphi, "Improvements in apparatus used in the manufacture of gas." Sept. 8, 1873.
2971.—Holland, H., Birmingham, "Improvements in the manufacture of gas for illuminating and heating purposes." Sept. 10, 1873.
2974.—Edwards, D. O., Bayswater, Middlesex, "Improvements in means and apparatus for producing and radiating heat." Sept. 10, 1873.
3004.—Winn, C., Birmingham, "Improvements in gas-lamps." Sept. 12, 1873.
3005.—Valon, W. A. M'I., Gas-Works, Ramsgate, "Improvements in apparatus used in the manufacture of gas." Sept. 13, 1873.
3006.—Tozer, C. W., North Brixton, Surrey, "Improvements in water-waste preventers." Sept. 13, 1873.
3011.—Richardson, G. W., New York, "Improvements in means or apparatus for ventilating and pumping purposes." Sept. 13, 1873.
3017.—Walker, W., Manchester, "Improvements in apparatus for regulating and controlling the temperature of liquids and fluids." Sept. 15, 1873.

GRANTS OF PROVISIONAL PROTECTION.

2728.—Smyth, J. F., Belfast, "Improvements in apparatus for the manufacture of gas; also applicable to the process of manufacturing aërated fluids." Aug. 18, 1873.
2889.—Green, H., Preston, and Barrow, J., West Gorton, near Manchester, "Improvements in effecting the ignition of gas, and apparatus and means for opening the supply of gas to burners, for igniting the gas, and for extinguishing gaslights." Sept. 2, 1873.
2901.—Yarrow, E. H., Camberwell Park, Surrey, "Improvements in the manufacture of gas for lighting and heating purposes, and in furnaces and apparatus for the same." A communication. Sept. 3, 1873.
2971.—Holland, H., Birmingham, "Improvements in the manufacture of gas for illuminating and heating purposes." Sept. 10, 1873.

NOTICES TO PROCEED.

1611.—Wirth, F., Frankfort-on-Main, "Improvements in self-lighting gas apparatus." A communication. May 5, 1873.
1794.—Bousfield, G. T., Sutton, Surrey, "Improvements in motive-power engines to be worked by steam or other fluid, applicable also to meters and pumps." A communication. May 16, 1873.
1922.—Lake, W. R., Southampton Buildings, London, "An improved method of and apparatus for generating vapour from bisulphide of carbon." A communication. May 28, 1873.
2471.—Muller, J. A., Amsterdam, "Improvements in apparatus for measuring and registering the flow of water and other liquids." July 17, 1873.
2779.—Lake, W. R., Southampton Buildings, London, "Improvements in apparatus for the production of light from benzine, naphtha, and other like substances." A communication. Aug. 21, 1873.
2782.—Brachigny, L. M., and Deschamps, J. E., Rouen, "Improved machinery for obtaining motive power by means of water and air or other fluid." Aug. 22, 1873.
2901.—Yarrow, E. H., Camberwell Park, Surrey, "Improvements in the manufacture of gas for lighting and heating purposes, and in furnaces and apparatus for the same." A communication. Sept. 3, 1873.

PATENTS WHICH HAVE PASSED THE GREAT SEAL.

872.—Heaton, W., Masborough, Yorkshire, and Giddings, W. H., Manchester, "Improvements in ball-cocks or valves used for controlling or regulating the supply of water and other fluids." March 11, 1873.
902.—Houghton, F. B., Borough Road, Southwark, "Improved means of and apparatus for filtering or separating water from earthy matters." March 12, 1873.
963.—Gardner, H., Holloway, Middlesex, "Improvements in apparatus and means for utilizing spirituous substances and oils for the purposes of producing artificial light and heat." March 15, 1873.
1059.—Forrest, T. H., Irvine, N.B., "Improvements in steam-pumps." March 21, 1873.
2235.—Bousfield, G. T., Sutton, Surrey, "Improvements in lamps to be used for cooking, heating, and lighting purposes." A communication. June 27, 1873.
2391.—Wotherspoon, J., and Foulis, W., both of Glasgow, "Improved lids or covers for retorts, and improvements in making the joint thereof with the retorts." July 11, 1873.
2527.—St. John, W. H., New York, U.S.A., "Improvements in processes for purifying illuminating gas, and apparatus therefor." July 24, 1873.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

2426.—Morley, C. W., "Improvements in gas-burners, and in the construction of the same." Sept. 7, 1870.
2433.—Johnson, J. H., "Improvements in pipe-joints or couplings." Sept. 8, 1870.
2437.—Ellis, G. H., "Improvements in steam, gas, and air engines." Sept. 9, 1870.

PATENT WHICH HAS BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2244.—Abel, C. D., "Improvements in joints or connexions for pipes." Aug. 31, 1866.

Share List
OF
Metropolitan Gas and Water Companies.

(*Corrected by Mr.* F. N. GOLDING, *Sun Court, Cornhill, from the latest Stock Exchange Quotations.*)

Number of Shares issued.	Amount per Share.	Name.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Latest Quotations.
	£	GAS COMPANIES.	£ s. d.	£ s. d.	£
8000	20	Anglo-Romano	20 0 0	10 0 0	22 — 24
5000	20	Bahia (Limited)	20 0 0	3 0 0	9 — 11
1000	20	Do., preference	20 0 0	10 0 0	24 — 26
750	20	Do., do., redeemable	20 0 0	10 0 0	22 — 24
40000	5	Bombay (Limited)	5 0 0	6 15 0	5½ — 6
10000	5	Do., fourth issue	4 0 0	6 15 0	4½ — 5
10000	20	British (Limited) (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbridge., and Holywell.)	20 0 0	10 0 0	32 — 34
7500	20	Cagliari (Limited)	20 0 0	7 0 0	15 — 16
160000	10	*Chartered* A shares	10 0 0	10 0 0	14½ — 15
20000	10	Do., A	4 0 0	10 0 0	3 —3½ pm.
10000	10	Do., B shares, 4 per cent. max.	10 0 0	4 0 0	7 — 7½
25000	10	Do., 5 per cent. preference	10 0 0	5 0 0	12½ — 12¾
20000	10	Do., 5 per cent. preference, second issue	10 0 0	5 0 0	12½ — 12¾
20000	10	Do., 10 per cent. preference	10 0 0	10 0 0	19½ — 20
12000	25	Do., D shares	25 0 0	10 0 0	48½ — 49½
17490	100	*Commercial*	100 6 0	10 0 0	154 —157
20000	20	Continental Union	20 0 0	8 0 0	19½ — 20½
10000	20	Do., new	10 0 0	8 0 0	¼ dis— par
10000	10	Do., new, 1872	2 10 0	8 0 0	¼ dis—¼ pm.
10000	20	Do., preference (Grmny.: Strsbg. France: Cette, Nismes, Montargis Vienne, Roanne, Beaucaire, Rueil, Albi. Italy: Milan, Genoa, Parma, Modena, Alessandria, Messina.)	20 0 0	7 0 0	23 — 25
5000	10	*Crystal Palace District*	10 0 0	10 0 0	15½ — 16
5000	10	Do., preference	10 0 0	6 0 0	13 — 13½
10000	10	Do., new shares	10 0 0	7 0 0	11 — 11½
23406	10	European (Limited)	10 0 0	8 0 0	13½ — 14
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	8 0 0	2 —2½ pm.
4054	10	Foreign and Colonial (Limited)	10 0 0	..	9 — 10
5000	10	Hong Kong (Limited)	10 0 0	10 0 0	13 — 13½
1560000	100	*Imperial*	100 0 0	10 0 0	154 —157
26000	12½	Do., new shares	12 10 0	7 0 0	14½ — 15½
1300	100	Do., bonds	£100	10 0 0	195 —200
56000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	45 15 0	9 2 6	56 — 58
3000	40	*Independent*	40 0 0	10 0 0	65 — 67
3000	10	Do.	10 0 0	5 0 0	7½ — 8½
3000	20	Do.	20 0 0	7 10 0	24½ — 25½
	10	Do., D	1 0 0	..	2½
250000	8k.	*London*	100 0 0	10 0 0	153 —156
£15000	8k.	Do., 1st preference	100 0 0	6 0 0	117 —120
	8k.	Do., 2nd preference	100 0 0	6 0 0	
	8k.	Do., 3rd preference	100 0 0	6 0 0	
£18781	100	Do., 1st preference stock	100 0 0	6 0 0	
£11828	100	Do., 2nd preference stock	100 0 0	5 0 0	
15000	5	Malta and Mediterranean (Limited)	5 0 0	5 0 0	3 — 3½
6000	5	Do., preference	5 0 0	7 0 0	5 — 5½
20000	5	Mauritius (Limited)	2 0 0	7 0 0	2 — 2½
25000	20	Monte Video (Limited)	20 0 0	..	22 — 23
8000	10	Nictheroy, Brazil (Limited)	10 0 0	..	2½—2 dis.
30000	5	Oriental (Calcutta)	5 0 0	9 0 0	6½ — 7
30000	5	Do., new shares	2 10 0	9 0 0	¾—1¼ pm.
10000	5	Ottoman (Limited)	5 0 0	nil.	1¾ — 2¼
17500	10	Para (Limited)	10 0 0	7 0 0	7¾ — 8¼
27000	20	*Phœnix*	20 0 0	10 0 0	31½ — 32½
3800007.	100	Do., new	45 0 0	7 10 0	58—60 pm.
1440007.	8k.	Do.	100 0 0	5 0 0	90 — 92
5000	20	*Ratcliff*	20 0 0	10 0 0	31 — 32
34000	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	34 — 36
7359	5	Singapore (Limited)	5 0 0	7 10 0	4¾ — 5
2000	5	Do., preference	5 0 0	7 10 0	5¾ — 6
1500	32½	Shanghai	32 10 0	12 0 0	30 — 32
4000	50	*South Metropolitan*	50 0 0	10 0 0	83 — 85
4000	12½	Do.	12 10 0	10 0 0	20 — 21
20000	12½	Do., new shares	2 10 0	10 0 0	3¾—4¼ pm.
15000	10	*Surrey Consumers*	10 0 0	10 0 0	15½ — 15¾
10000	10	Do., new	7 0 0	10 0 0	4 — 4½
9000	4	United General (Limerick)	4 0 0	2 10 0	1¾—2¼ pm.
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	14 — 15
1500	10	Do.	10 0 0	7 10 0	11 — 12
2957	10	Do.	10 0 0	7 0 0	
993	10	Do.	3 0 0	7 0 0	
16000	5	*West Ham*	5 0 0	10 0 0	7¾ — 8¼
10000	5	Do., new shares	1 10 0	10 0 0	3—3¼ pm.
		WATER COMPANIES.			
60000	10	Berlin	10 0 0	11 10 0	18 — 20
12000	100	Chelsea	100 0 0	6 0 0	117 —119
18000	100	East London	100 0 0	6 0 0	121 —123
10000	50	Grand Junction	50 0 0	8 10 0	77 — 79
5640	25	Do., ¼ shares	25 0 0	8 10 0	38 — 39
2160	25	Do., new do.; maximum dividend, 7½ per cent.	25 0 0	7 10 0	31 — 33
4396	100	Kent	100 0 0	6 0 0	120 —122
5339	100	Lambeth	100 0 0	6 5 0	120 —122
1161	100	Do.	20 0 0	6 5 0	
442	100	New River	100 0 0	8 0 0	170 —180
4443	100	Do.	20 0 0	8 0 0	36 — 38
4000	100	Do., debenture stock, 4 per cent.	100 0 0	4 0 0	96 — 98
3036	100	Southwark and Vauxhall	100 0 0	5 10 0	103 —105
1296	100	Do., preference stock	100 0 0	5 0 0	101 —103
	100	Do., D shares	100 0 0	5 10 0	101 —102
		Do.	..	4 10 0	
	100	Do., new ordinary	..	4 10 0	
1600	100	Do., new ordinary, No. 1	40 0 0	4 10 0	
13913	61	West Middlesex	61 0 0	£6 per sh.	120 —122

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1 in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle and Middlesboro'.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1 (g.m.b.)	—	5 7 0	6 7 6	6 10 0	6 5 0
1½ and 2 inch Socket-pipes	11 0 0	10 10 0	10 10 0	10 10 0	10 10 0
2½ and 3 inch do.	10 10 0	9 15 0	9 10 0	9 15 0	9 15 0
4 and 5 inch do.	10 0 0	9 10 0	9 0 0	9 10 0	9 10 0
6 inches and upwards, do.	9 10 0	9 0 0	8 17 6	9 0 0	9 0 0
Retorts, 1st fusion, hot blast	10 10 0	9 15 0	10 15 0	9 15 0	9 15 0
Do., 2nd do., cold do.	—	—	—	—	—
Tank Plates, ¼ thick and above	11 10 0	15 0 0	11 0 0	11 0 0	16 0 0

WROUGHT-IRON TUBES AND FITTINGS.

(Subject to 25 per cent. discount.)

Internal Diameter in Inches.	2	1½	1¼	1	¾	½
TUBES.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assorted, 2 to 14 feet, per foot	1 9	1 2	0 11	0 8	0 6	0 4½
Pieces, 12 to 23½ inches, each	3 0	2 0	1 8	1 4	1 0	0 9
Do., 3 to 11½ do.	2 3	1 4	1 1	0 11	0 8	0 6
Longscrews, 12 to 23½ do.	4 0	2 6	2 0	1 6	1 2	0 11
Do., 3 to 11½ do.	3 0	2 0	1 3	1 0	0 10	0 8
Bends and Lamp Bends	4 3	2 3	1 9	1 3	0 11	0 8
Springs, various elevations	3 3	1 8	1 4	0 11	0 9	0 7
FITTINGS.						
Square Elbows, equal or reducing	3 6	2 3	1 9	1 2	0 10	0 8
Round Elbows	3 10	2 6	1 11	1 4	1 0	0 9
Tees, equal or reducing	3 9	2 6	1 2	1 3	1 0	0 9
Crosses, do.	5 3	3 6	3 0	2 3	1 9	1 5
Sockets, reducing	1 3	0 11	0 9	0 7	0 6	0 5
Caps and Plugs	1 3	0 10	0 8	0 6	0 5	0 4
Nipples and Backnuts	1 0	0 8	0 6	0 4	0 3½	0 3
Sockets, plain	1 0	0 7	0 6	0 4	0 3½	0 3
Iron Main-Cocks	18 0	11 0	8 6	6 6	4 6	3 6
Syphon Boxes, 2 quarts	23 0	19 0	18 0	17 0	16 9	—

LONDON METAL MARKET.—*Per Ton.*

	£ s. d.		£ s. d.
Copper, tough cake	92 0 0	Tin, English block	129 0 0
Iron, Welsh bar	12 0 0	Tin-plates, best coke I. C.	1 13 0
Lead, English pig	23 5 0	Spelter, foreign	26 0 0

FREIGHTS.

COASTWISE.—*Per Ton.*

Newcastle—	s. d.	s. d.
Chatham and Rochester		—7 0
Cork (per keel) £10—	£10	10 0
Dover, Folkestone, and Ramsgate		—7 3
Dublin		—
Exeter Quay		—
Ipswich		—6 6
London (from Leith)		—7 0
London (Pool)		—6 6
Lowestoft and Yarmouth	5 6	—5 9
Portsmouth and Southampton	8 3	—8 6
Plymouth (per keel) £9	10 0	—
Shoreham		—7 6
Whitstable		—7 9
Weymouth		—8 0

FOREIGN.—*Per Keel.*

	£ s.	£ s.
Barcelona		—17 0
Bordeaux		— 9 10
Boulogne and Calais	8 13—	9 0
Cadiz		—12 0
Cronstadt		— 7 0
Copenhagen		— 9 0
Genoa	17 10—	18 0
Hamburg	9 0—	9 5
Havre de Grace	9 10—	10 0
Leghorn		—18 0
Lisbon		—10 10
Rotterdam		— 9 5
Stettin		— 9 5
Trieste		—22 0
Venice		—24 0

GAS COALS.—*Per Ton.*

Scotch Cannels, f.o.b.—	s. d.
Boghead, at Bo'ness	77 6
Capeldrae, at Burntisland	53 8
Cowdenbeath, do.	—
Donnibristle, do.	52 0
Kirkness, best, do.	53 8
Lesmahago (Auchin.), at Granton	46 0
Do. (Duke of Hamilton's), do.—	
Main	43 6
Wee	46 0
Do. (Nitshill Co.'s), do., and at Glasgow	47 6
Lochgelly, at Burntisland	—
Milton and Crosshill	38 8
Newcastle (Unscreened)—	
Haswells, Nettlesworth Primrose, and South Pelaw	
Felling, Framwell Gate, North Pelton, Walker's Primrose, West Wear, and Whitwell Primrose	
Burnhope, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Pelton Main, Ravensworth, Seaham, South Moor Pelton, South Leverson, Townley Main, West Pelaw, Wearmouth Hutton, and Witton	
Pearth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	
Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, South Pearth, Urpeth, Washington, and West Leverson	
Ramsay's Newcastle Cannel	
Wigan Cannel, f.o.b. at Liverpool	

Scotch Cannels, f.o.b.—	s. d.	Per Ton.
Arniston, at Leith	40 0	
Billeyford, at Leith	26 0	
Elphinstone Tower, do.	30 0	
Grange Cannel, at Bridgeness	—	
Haywood, at Granton	—	
Kinniel, at Bo'ness	35 0	
Lanemark, at Glasgow	—	
Lochore, at Burntisland	53 8	
Myles' do.	—	
Pirnie, at Methill	26 6	
Waverley Seam, at Burntisland	—	
Old Wemyss Cannel, at Wemyss	45 0	
Wemyss Rhumes Cannel	22 6	
		—
		—
		—
		—
		—
		—
		40 0
		40 0

CHEMICALS.

Ammonia—	£ s. d.	Iron Salts—	£ s. d.
Sulphate, white and grey	17 10 0	Green and rusty Copperas	3 10 0
Do., brown, 23 per cent.	15 15 0	Dry do.	2 15 0
Benzole, 30 per cent.	0 2 4	Sulphuric Acid	3 10 0
Carbolic acid	0 1 1		

SUNDRIES.

	£ s. d.	£ s. d.
Best Newcastle Fire-bricks, per 1000	—	4 0 0
Do., Fire-clay Retorts, per foot run	0 7 0 —	0 7 6
Cliff's Fire-bricks, at Wortley, per 1000	—	3 10 0
Ingham's best Wortley Fire-bricks, on rail or boat, per 1000	—	3 10 0
Farnley Iron Co.'s Fire-bricks, do., do.	—	3 10 0
Wortley Fire-clay Retorts, per foot run	0 5 6 —	0 7 6
Tarred Rope Yarn, per cwt.	—	
Fraser's best Fire-bricks, f.o.b. at Inverkeithing	—	2 10 0
Do. Retorts, per foot run	0 5 0 —	0 7 6
Do. Ground Fire-clay, per ton	—	0 10 0
Stourbridge Fire-bricks, per 1000	—	3 0 0
Do. Fire-clay, per ton	—	0 12 0

BERLIN WATER-WORKS COMPANY.—An extraordinary meeting of shareholders was held on the 12th inst., at the offices, Finshury Circus—Mr. Sim in the chair. The chairman stated that the meeting was called to confirm, if deemed expedient, a resolution passed at a previous special meeting for authorizing the directors to enter into and carry into effect on behalf of the company a contract with the municipality of Berlin for the sale to them of the works, property, and undertaking of the company on such terms and conditions as the board of directors might think proper. The chairman proposed that the resolution be confirmed. Mr. Cunliffe seconded the resolution, and stated that if the provisional sale was carried out the municipality of Berlin would hand over to the company on the 4th of January next £600,000 in short bills, and £600,000 in three months bills. A shareholder thought it would have been much better for the company to retain their works for eight years more, and sell them at the end of the time at a valuation; for, in that case, the shareholders would have received their dividend during the eight years, and afterwards sold their property, perhaps, at a better price than they were now offered. Mr. Walker also concurred in the opinion that it would be more advantageous not to sell the water-works at present. He asked what per centage of profits the company were allowed by Government; to which Mr. Cunliffe answered that 15 per cent. was the maximum, and if that were exceeded the company would have to reduce the water-rate. The resolution was then carried, and a vote of thanks to the chairman concluded the proceedings.

W. T. ALLEN & CO.,

(LATE TURNER & ALLEN,)

201, UPPER THAMES STREET,

London,

GAS & WATER ENGINEERS.

CONTRACTORS FOR THE SUPPLY OF

LAMP COLUMNS, LANTERNS,

FOUNTAINS, PIPES, &c.,

TO

GAS, WATER, & RAILWAY COMPANIES, LOCAL BOARDS, SHIPPERS, &c.

A Volume of the Newest Designs, with Price Book, forwarded on receipt of 10s.

GAS MANAGER'S HANDBOOK,

BY

THOMAS NEWBIGGING, A.I.C.E.

A SECOND EDITION

OF THIS

VALUABLE WORK,

ENLARGED, IMPROVED, AND IN A MORE PORTABLE FORM,

IS NOW IN COURSE OF PREPARATION.

Orders for Advertisements to be inserted therein should be addressed to the Publisher,

WILLIAM B. KING,

11, BOLT COURT, FLEET STREET, LONDON, E.C.

The GRAND MEDAL of MERIT at the VIENNA EXHIBITION has been AWARDED to

GWYNNE & BEALE'S PATENT IMPROVED GAS-EXHAUSTERS,

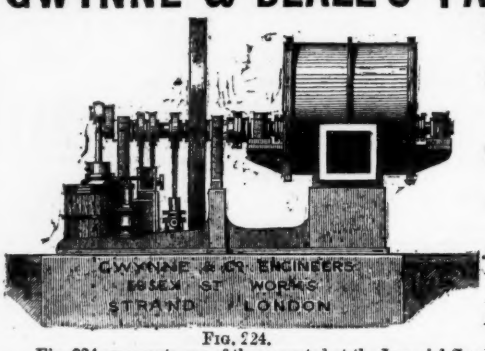


FIG. 224.

The BEST EXHAUSTERS IN THE WORLD.

Made under the personal superintendence of

Mr. BEALE,

The oldest Maker, Inventor and Patentee of GAS-EXHAUSTING MACHINERY.

(It is NOT CORRECT to state that Mr. BEALE has RETIRED.)

Prices and every information on application.

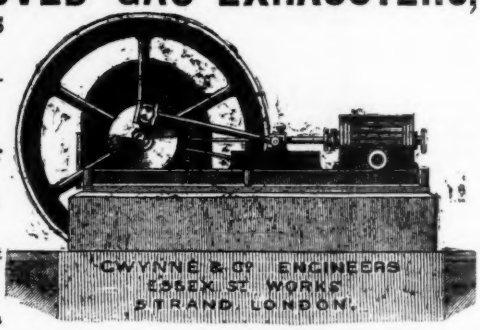


FIG. 225.

Fig. 224 represents one of those erected at the Imperial Gas-Works, Bromley, capable of passing 210,000 cubic feet of gas per hour. Several others of the same size are now on order for the same Company. These Patent Machines combine the highest quality of workmanship and materials, the largest bearings and wearing surfaces, with the **most perfect system of action yet discovered.** Fig. 225 represents one of a series of four at the Nottingham Gas-Works, each passing 52,500 cubic feet per hour. GWYNNE AND CO. *do not pretend to enter into a struggle with other makers in respect to cheapness. They have never sought to make price the chief consideration, but to produce Machinery of the very highest quality, and the most approved design and arrangement.* Their prices have been estimated with a due regard to the **excellence of the article produced,** and when this is taken into consideration, they have no fear for the result. The orders executed this season for Exhausters and alterations to their patented system amount to over 4,000,000 cubic feet of gas passed per hour, and to over 300 horse power for Engines to drive them. In every instance their work is giving the greatest satisfaction. Numerous testimonials and references can be given.

REGULATORS, BYE-PASSES, STOP-VALVES, GAS-VALVES, & MACHINERY FOR GAS MANUFACTURE, OF ALL SIZES,

CAN BE HAD ON APPLICATION TO

GWYNNE & CO., HYDRAULIC & GAS ENGINEERS, ESSEX STREET WORKS, STRAND, LONDON, W.C.

G. & Co. are now manufacturing for a London Gas Company three of their 210,000 cubic feet Patent Gas Exhausters, and many of all sizes.

DUKE OF HAMILTON'S

LESMAHAGOW GAS COAL.

The superior quality of this well-known Cannel, as wrought by

THE NITSHILL AND LESMAHAGOW COAL COMPANY,

Is now generally admitted by all Gas Engineers.

PRICE AND ANALYSIS MAY BE HAD ON APPLICATION TO

JAMES M'KELVIE, HAYMARKET, EDINBURGH.

GAS-WORKS.

WANTED, a thoroughly practical Foreman, to take charge of the works. None but those who are steady and industrious need apply.

Address F. C. R., Post-Office, SWANSEA.

WANTED, a Working Manager in a Gas-Work. Experienced in the use of clay retorts. Wages 30s. per week, with house, coals, and gas. A night man engaged during the winter months.

Apply, with references of character and ability, to WILLEY AND FORD, Gas Engineers, EXETER.

TO GAS COMPANIES AND OTHERS.

WANTED, by the Advertiser, an appointment as MANAGER. Has had thorough practical experience in every department connected with the erection and management of Gas-Works, both at home and abroad. Has first-class testimonials.

Address AMICO, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, by the Ceara Gas Company, a GAS-FITTER, to proceed to Ceara immediately. Salary for first year 120 milreis (equal to £13 10s.) per month.

Apply, by letter only, stating present and past engagements, to the SECRETARY, Ceara Gas Company, Limited, 10, Coleman Street, City, LONDON.

TO GAS COMPANIES.

WANTED, early in October, by a young man who has had 12½ years experience in Gas-Works, and has for five years had the management of a Gas-Work, a re-engagement as MANAGER. Excellent references as to character, ability, &c.

Address J. H., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED to Purchase, a second-hand STATION-METER, in good order, with bye-pass, &c., to pass 8000 to 10,000 cubic feet per hour.

Apply to the HOLYWOOD GAS COMPANY, County Down, IRELAND.

WANTED, by the Secretary and Manager of a Gas Company, who will be at liberty in about a month, having resigned his present engagement, a re-engagement as Secretary, Secretary and Manager, Assistant Engineer, or Accountant. The highest possible testimonials as to ability, sobriety, and honesty, having been ten years with present employers. Security as required. Salary moderate.

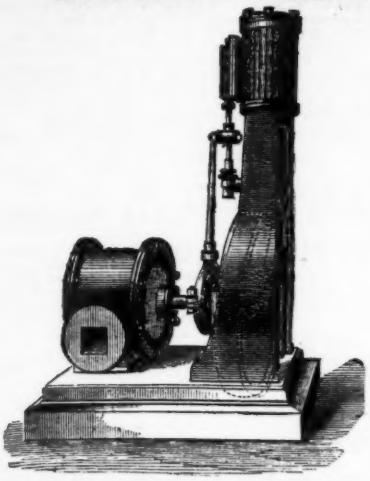
Address A. B., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO PLUMBERS.

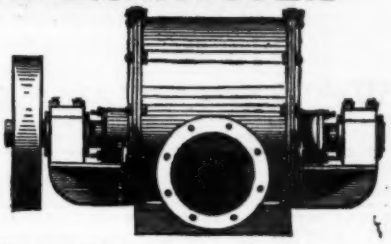
WANTED immediately, an experienced person as PLUMBER, who must be fully competent to execute all descriptions of work in this department, including fixing, jointing, laying mains and services, and the fitting up houses, &c.

Applications, to state age and wages expected, accompanied with testimonials, to be addressed to JOHN WILSON, Secretary and Manager, Gas and Water Company, Victoria Road, ALDERSHOT.

BEALE'S IMPROVED PATENT GAS-EXHAUSTER



WITH
ENGINE COMBINED
ON
ONE BASE PLATE.



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GEORGE WALLER & CO.;
Who, since Mr. BEALE'S retirement, are the Oldest Makers.

EXHAUSTERS with HORIZONTAL ENGINE combined.
EXHAUSTERS with OUTSIDE BEARINGS.
MAKERS of ENGINES, BOILERS, and GAS MACHINERY.
TAR, LIQUOR, and SYPHON PUMPS. GAS-VALVES in stock, 2 to 30 inches.
SELF-ACTING BYE-PASS VALVES, with Lid and Relieving Lever.
MANN'S and many other descriptions of WATER DISTRIBUTORS,
SCRUBBERS, PURIFIERS, and CONDENSERS.
EXHAUSTERS from 3000 to 60,000, new and second hand, in stock.

PHŒNIX ENGINEERING WORKS, HOLLAND STREET, S.E., & at STROUD, GLOUCESTERSHIRE.

WHITEHOUSE AND COMPANY, LIMITED,

GLOBE TUBE-WORKS, WEDNESBURY; & VICTORIA TUBE-WORKS, GREAT BRIDGE, STAFFORDSHIRE,
MANUFACTURERS OF
PATENT WELDED WROUGHT-IRON TUBES,
FOR GAS, STEAM, AND WATER;
GAS-FITTERS TOOLS, STEAM-COCKS, AND ALL KINDS OF JOINTS.
HYDRAULIC TUBES, CORE BARS, TELEGRAPH POSTS, COILS, &c.

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IMPROVED VENTILATING SUN-LIGHTS
WITH TALC REFLECTORS AND SELF-ACTING VALVES
TO PREVENT DOWN-DRAUGHT;
VENTILATING GLOBE LIGHTS for DINING-ROOMS, LIBRARIES, &c.
Ormolu, Bronze, & Crystal Gaseliers;
MEDIÆVAL CHURCH WORK AND CORONÆ
COCKS, VALVES, and FITTINGS for GAS, STEAM, and WATER;
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Drawings and Prices upon application.

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ARE NOW PREPARED TO GRANT
LICENCES FOR THE USE OF THEIR VARIOUS PATENTS
FOR
STOKING BY MACHINERY.

UNDER one or the other of their Patents, Machines can be adapted to almost any existing works without material alteration of the Retort-Houses or Settings.

Applications, accompanied by full particulars as to dimensions of the Retort-Houses, Settings of the Retorts, &c., &c., should be addressed to the Secretary, at the Offices of the Company,

155, FENCHURCH STREET, LONDON, E.C.

LIVESEY FIRE-CLAY WORKS,
NEAR BLACKBURN, LANCASHIRE.
(ESTABLISHED 1835.)

ORLANDO BROTHERS,

MANUFACTURER OF PATENT CLAY RETORTS,
AND EVERY DESCRIPTION OF
TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.
FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

TO GAS COMPANIES.

WANTED, by the Advertiser, a re-engagement as MANAGER of a medium-sized Gas-Works. Thoroughly conversant with the manufacture and distribution of gas. Has been at present employment nine years. First-class references.

Address J. G. S., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, an engagement as Secretary and MANAGER in a Gas-Work. Annual make from about 10 to 50 millions. Advertiser holds such position. Manufacture, purification, distribution of gas, testing, and accounts thoroughly understood. Highest references.

Address B. D. T., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO GAS COMPANIES, METER MAKERS, & OTHERS.

WANTED, by a young man, who has a practical knowledge of Gas-Meters of various manufactures, a SITUATION to Supervise, Inspect, or Prove. Can use the soldering iron. Has had 15 years experience at three of the principal dry meter manufacturing firms in London.

Address W. F., 38, Milton Road, SOUTH HORNSEY.

FITTERS WANTED—OUTDOOR AND INDOOR.

WANTED immediately, by a provincial Gas Company, an experienced FITTER, capable of fitting up boilers, retort-house works, main and service laying.

Also a young man as INDOOR FITTER, used to fitting up works and large establishments in iron and compo tubing, and likewise a good Meter Repairer and Tinman. Good characters for industry and sobriety indispensable. State wages.

Apply to S. G., care of Mr. King, 11, Bolt Gourt, FLEET STREET, E.C.

COOKING AND HEATING BY GAS,
BY
MAGNUS OHREN, A.I.C.E.

NEW AND REVISED EDITION.

Prepared for Gas Companies to circulate amongst their gas consumers.

£1 per 100; £3 15s. per 500; or £6 per 1000.

Address, MAGNUS OHREN, Gas-Works Lower Sydenham, London, S.E.

COST PRICE SHEETS.

MANUFACTURE AND DISTRIBUTION OF GAS. These sheets are the same as were laid before the Dublin Meeting of the British Association of Gas Managers; but in the REPRINT, NOTES have been added for the guidance of those using them. Copies of the two sheets may now be had, price 5s.

South Shields, January, 1873. W. J. WARNER.

MR. NORWOOD EARLE, late of the Dover Gas-Works, is prepared, after 17 years experience, to undertake the duties of SURVEYOR to Gas Companies and Corporations in all matters relating to the Distribution of Gas and Gas Testing. Contracts entered into for the Survey of Mains, Services, Public Lamps, &c., in order to reduce the per centage of unaccounted-for gas to the lowest possible amount.

Valuations for Assessment, Transfer, and other purposes.

Offices, MANSION HOUSE CHAMBERS, 12, Queen Victoria Street, LONDON, E.C.

FOR SALE, at the Thetford Gas-Works, a CONDENSER in excellent order. It has 4-inch inlet and outlet ties under the box, and 16 pipes 3½ in. bore and 9 ft. long.

Apply to THOMAS H. METHVEN, Gas-Works, BURY ST. EDMUND'S.

FOR SALE, a small Station-Meter, in cast-iron cylindrical case; in good order and condition. Capacity, 1200 cubic feet per hour.

Apply to J. H. MASON, Chairman, Newbury Gas Company, Newbury, BERKS.

GAS PLANT FOR SALE, consisting of two gasholders, two purifiers, washer, tanks, &c., in good condition.

For particulars, apply by letter to H. B. ARBER, 26, Cambridge Gardens, NOTTING HILL, W.

METER FOR SALE—A Meter con-structed to pass 900 feet per hour.

Apply to the MANAGING DIRECTOR, Risca and Pontymister Gas Company, Bank Chambers, Newport, MONMOUTHSHIRE.

GAS-PURIFIERS FOR SALE, SECOND HAND.

A SET OF FOUR PURIFIERS, each 7 ft. by 4 ft., by 2 ft. 6 in. deep, with 9-in. seal, hydraulic centre-valve, and 8-in. connexions complete. Set of Wood Sieves, nearly new. The Purifiers are being replaced by larger size. Also a 12-inch Hydraulic Centre-Valve.

Application to be made at the Gas-Works, NUNEATON.

HALIFAX CORPORATION GAS-WORKS.

TO BE DISPOSED OF — Six 16-inch FOUR-WAY ANDERSON VALVES, with fittings complete.

The above (replaced by 20-inch) are in good working order.

Apply to Mr. MALAM for any further particulars.

TO BE DISPOSED OF, in consequence of being replaced by larger ones, a pair of 6 H.P. VERTICAL ENGINES, with oscillating cylinders, and a pair of 20,000 feet per hour ROTARY EXHAUSTERS, with some valves and connexions.

The above are in good condition, and will be sold together or separately. Price, for the whole, £130.

Apply to W. C. WATSON, Engineer, Gas-Works, KINGSTON-ON-THAMES.

THE NEW GAS COMPANY, LIMITED.

THE Directors of the above Company are ready to receive APPLICATIONS from owners of existing Gas-Works, as well as from others erecting or about to erect new works, and to grant Licences for the use of the Patents.

Apply to the SECRETARY, 22, WALBROOK, E.C.

TAR AND LIQUOR.

THE Gas-Works Committee of the Widnes Local Board are prepared to receive TENDERS for the surplus TAR and AMMONIACAL LIQUOR to be produced at their Gas-Works, Widnes, for a period of One year, from the 1st of October next.

The Tar and Liquor will be delivered on rails at Widnes.

Forms of tenders, with other particulars, may be obtained on application to the undersigned, at the Gas-Works, Widnes.

Tenders to be addressed to the Chairman of the Gas-Works Committee, endorsed "Tender for Tar," or "Liquor," as the case may be, and to be delivered at the Gas-Works, Widnes, on or before the 11th of October next.

N.B.—Tenders other than on the prescribed form will not be accepted, and the Board do not bind themselves to accept any tender.

T. A. DREW, Engineer and Manager.

Gas-Works, Widnes, Sept. 20, 1873.

PHŒNIX GASLIGHT AND COKE COMPANY.

NOTICE is hereby given that the ADJOURNED HALF-YEARLY GENERAL MEETING of PROPRIETORS holding, previous to the 30th of June last, £300 paid-up capital and upwards in the said Company, will be held, pursuant to the Act of Incorporation, on WEDNESDAY, the 8th of October, at One o'clock precisely, at the Bridge House Hotel, in the Borough of Southwark, for the purpose of declaring Dividends to the 30th of June last, to make a Call of 10 per cent. on the New Stock, payable on the 1st of November next, and on other business.

The Transfer Books will be closed on and after the 24th of September, and opened on the 9th of October.

By order of the Court of Directors,

ISAAC ADOLPHUS CROOKENDEN, Secretary.

70, Bankside, London, Sept. 21, 1873.

SOUTH METROPOLITAN GASLIGHT AND COKE COMPANY.

NOTICE is hereby given that an ORDINARY MEETING of the PROPRIETORS of this Company will be held at the London Tavern, in the City of London, on MONDAY, the 6th day of October next, at Two o'clock in the afternoon precisely, to receive the Directors report and the accounts of the Company for the half year ended the 30th of June last, and to declare a Dividend for the same period.

The Transfer Books of the Company will be closed from the 22nd of September to the 6th of October.

By order,

GEORGE LIVESEY, Secretary and Engineer.

Old Kent Road, Sept. 13, 1873.

THE Directors of the Earl Shilton Gas Company solicit TENDERS for what they could be supplied with COALS; they also ask OFFERS for their Tar, Coke, and Ammonia Water.

Communications to be made to Mr. ROWE, Secretary, Earl Shilton, HINCKLEY.

In the press, and will shortly be published,

THE GAS CONSUMER'S MANUAL;
OR,
How to obtain Good Light and Cheap Gas.

Being a Popular Exposition of the Chemistry of Gas Lighting, with Practical Instructions in the best methods of burning Gas for Lighting, Cooking, and Heating; and Suggestions as to the proper Sizes of Interior Pipes, Arrangement of Lights, &c., &c.

ILLUSTRATED.

ALSO,

ON SETTING AND WORKING RETORTS.

A Revised and Illustrated Reprint of a Paper read at the Annual Meeting of the British Association of Gas Managers in 1870.

By E. S. CATHELS, Assoc.Inst.C.E., Montreal, Canada.

OXIDE OF IRON.—

We are prepared to supply, on moderate terms,

HYDRATED PEROXIDE OF IRON (BOG OCHRE),

Same quality as supplied by us to several of the most extensive Gas Companies, and which has given entire satisfaction.

FRANCIS RITCHIE & SONS,
BELFAST.

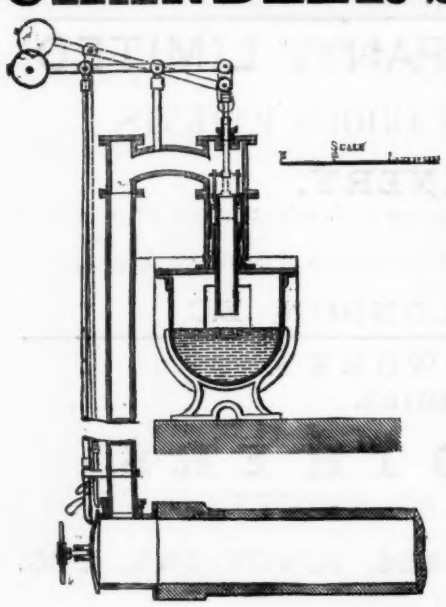
ALFRED WILLIAMS,

PHŒNIX FIRE-BRICK WHARF,

64, BANKSIDE, SOUTHWARK, LONDON, S.E.

GAS ENGINEER AND CONTRACTOR FOR THE ERECTION OF GAS-WORKS,
AND FOR THE
SUPPLY OF RETORTS, FIRE-BRICKS, CAST-IRON MAINS,
AND ALL MATERIALS FOR GAS MANUFACTURE AND DISTRIBUTION.

CHANDLER'S PATENT DIP-PIPE.



It is well known by all Gas Managers that back pressure upon the retorts greatly retards the production of gas, causing a deposit of carbon which keeps steadily accumulating. Such carbon reduces the capacity of the retorts, requires extra fuel for heating, and has to be frequently removed by heavy iron bars, which very much injure the retorts. By the use of Chandler's Patent Dip all these evils are entirely remedied. When the retorts are being drawn and charged, the Dip-Pipe is sealed in the fluid of the hydraulic main. As soon as the lids are replaced, the Dip is raised completely out of the fluid, and the gas passes unrestricted to the holders. By running the exhauster to a level gauge, ALL PRESSURE IS REMOVED FROM THE RETORTS. The consequence is that there is no deposit of carbon, no need of scurfing, no extra fuel is required, a large saving of wear and tear and loss of time is effected, and a greatly increased production of gas per ton of coal is realized.

The following testimonial letter has been received from the manager of the Erith Gas-Works:—

Messrs. Chandler and Sons.

Gentlemen,—I beg to inform you that during last week I carbonized 18 tons 5 cwt. of Ravensworth Pelaw Coal in a single setting of retorts fitted with your Patent Dip-Pipes, and obtained a yield of 195,800 feet of gas, equal to 10,730 feet per ton, which is a considerably greater yield than I have been able to obtain before using your Dip. The single retort fitted with your Patent Dip, which has now been in use here upwards of four months, has been throughout, and is now, quite free from carbon.

I am, gentlemen, &c.,

Erith Gas-Works, Aug. 2, 1873. (Signed) D. VINCENT, Manager.

For terms of use and cost, apply only to the Patentees,

Messrs. CHANDLER & SONS, ENGINEERS AND CONTRACTORS,
YORK STREET, LONDON ROAD, SOUTHWARK, LONDON, S.E.

THE FARNLEY IRON COMPANY, LIMITED,

FARNLEY, near LEEDS,

MANUFACTURERS OF

FIRE-CLAY GAS-RETORTS & FIRE-BRICKS,

Of every size and shape, and of the best quality; also of White and Coloured GLAZED BRICKS, SANITARY PIPES, &c., &c.

The F. I. Co. have the exclusive right to make and sell Fraser's Patent "Ribbed" Gas-Retorts in Fire-Clay.

In order to meet the constantly increasing demand for their Gas-Retorts, the F. I. Co. have recently made such an addition to their premises as will enable them to execute expeditiously the largest home or foreign orders.

Apply as above, or to the London Offices, 15, NEW BROAD STREET, E.C.

GAS PURIFICATION.

JOHN WM. O'NEILL AND CO.,

CONTRACTORS FOR

GAS PURIFICATION BY OXIDE OF IRON,

39, LOMBARD STREET, LONDON, E.C.

THE ECONOMIC GAS-RANGE & ROASTER COMPANY,

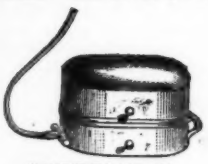
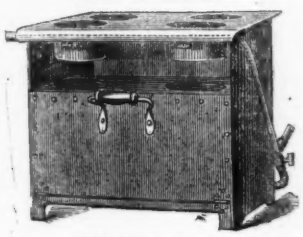
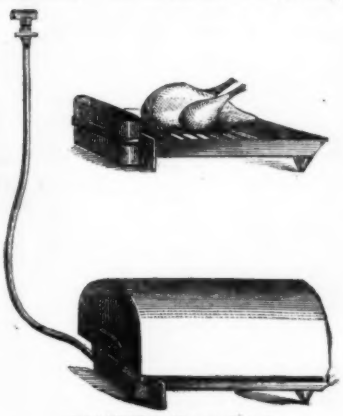


TABLE ROASTER.



SMALL RANGE.

LARGE RANGE.



ROASTERS, Nos. 1, 2, & 3.

ON SOUTHBY'S PATENT, WHICH SECURES PERFECT VENTILATION.

A 7-lb. JOINT ROASTED TO PERFECTION FOR ONE HALFPENNY.

SELECTED BY THE COMMISSIONERS FOR THE ANNUAL INTERNATIONAL EXHIBITIONS, 1871 & 1873.

A pennyworth of gas, perfectly consumed and economized as it is under this Patent, does as much work as six pennyworth of coal. The peculiar arrangement of cannel fishtails in a chimney secures freedom from smoke even with the richest gas, and a positive immunity from every trace of smell. The simplicity in use is so great that no experience is required. Roasters from 10s. 6d. to £1 5s. Complete Ranges at £2 for small families; £3 10s. for ordinary establishments; and £6 for a Range equal in power to a large Kitchener. Estimates given for fitting up Hotels, Restaurants, and large Establishments.

Works: 2, BASSETT STREET, MALDON ROAD, KENTISH TOWN, N.W.,

Where the Apparatus can be seen in operation;

And at Mr. WOODCOCK'S Offices, 23, ABINGDON STREET, WESTMINSTER, where Mr. SOUTHBY can be consulted by appointment.

WILLEY AND FORD,

GAS ENGINEERS,

WORKS: COMMERCIAL ROAD, EXETER,

INVITE THE ATTENTION OF GAS COMPANIES AND OTHERS FOR THE SUPPLY OF

EVERY DESCRIPTION OF GAS APPARATUS.

ENGINEERING DEPARTMENT.

NEW GAS-WORKS erected complete. Plans and Estimates furnished. MAINS, METERS, SERVICES, LAMPS, &c., adapted for Towns of any size. Gas Companies advised on Improvements, Extensions, and Alterations of Works.

GASHOLDERS AND TANKS.

RETORTS and RETORT-HOUSE FITTINGS, CONDENSERS, SCRUBBERS, ENGINES and EXHAUSTERS, PURIFIERS, STATION-METERS, GOVERNORS, VALVES, &c.

METER DEPARTMENT.

They beg special attention to the excellence and superiority of their WET and DRY METERS, several thousand being now in use by many of the largest Gas Companies in the West of England and South Wales. Warranted to measure correctly, and not to vary. Their acknowledged superiority has brought them into general use more rapidly than any Meters hitherto manufactured. A guarantee of Five years tendered with each Meter.

GAS-FITTING DEPARTMENT.

An extensive variety of Choice Designs in CHANDELIERS, PENDANTS, BRACKETS, STAR and SUN LIGHTS, MEDIÆVAL FITTINGS for CHURCHES, &c.

PATTERN-BOOKS and PRICE LISTS furnished.

☞ PLEASE NOTE THE ADDRESS—

GAS ENGINEERING WORKS, COMMERCIAL ROAD, EXETER.

WILLIAM & BENJAMIN COWAN,

ESTABLISHED 1827,

KING HENRY'S WALK,
BALLS POND ROAD,
(NEAR DALSTON JUNCTION STATION,) **LONDON, N.**

BUCCLEUCH ST. WORKS,
EDINBURGH.

Manufacturers of DRY GAS-METERS in TIN AND CAST-IRON CASES.

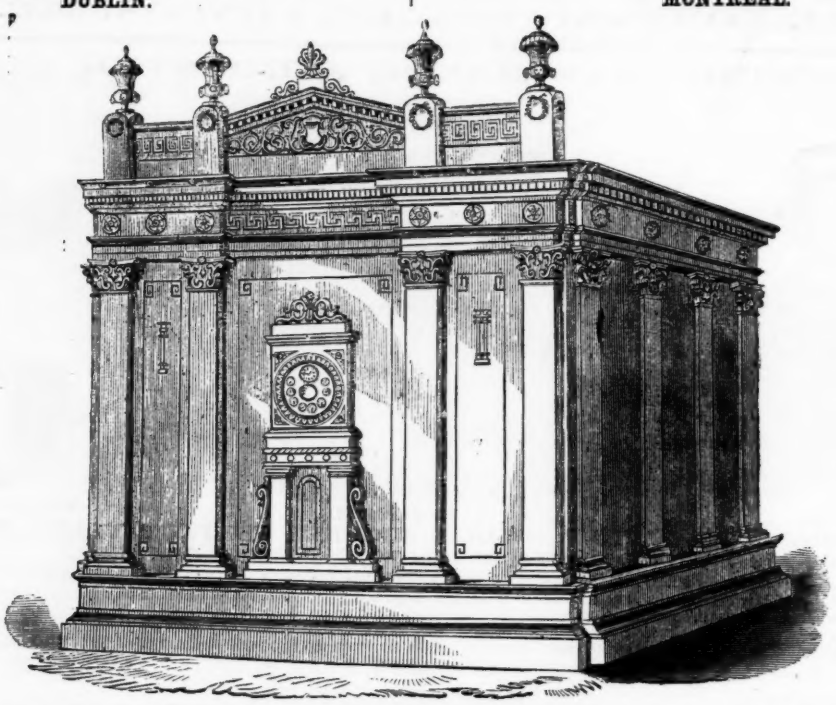
Sole Manufacturers of ESSON'S PATENT COMPENSATING GAS-METER,

AND OF **COWAN'S PATENT SIDE-VALVE GAS-METER.**

AGENTS.

Messrs. J. EDMUNDSON & Co., 36, Capel Street, DUBLIN.

Messrs. R. MITCHELL & Co., Peter Street and Craig Street, MONTREAL.



W. & B. COWAN'S SQUARE STATION-METER with PLANED JOINTS.

GOVERNORS, PRESSURE REGISTERS, TEST GASHOLDERS, GAUGES, &c.
WET AND DRY METERS SPECIALLY MANUFACTURED FOR STREET-LAMPS.

PRICE LISTS ON APPLICATION.

Mr. ALFRED LASS,
60, CORNHILL, LONDON, E.C.,

Is prepared to open the Books, and, if necessary, keep the Accounts of Gas and Water Companies.

To examine the Books and Accounts, and prepare Balance-Sheets for the information of Directors.

To assist Secretaries in preparing Balance-Sheets, according to the "Gas-Works Clauses Act, 1871;" or may be consulted with respect to Accounts generally.

SAMUEL PONTIFEX, Consulting Gas Engineer, having retired from the Great Central Gas Company, is now prepared to furnish PLANS and SPECIFICATIONS, as well as ADVISE Provincial Gas Companies as to the erection of new, or alteration and enlargement of existing works.

Offices: 22, Coleman Street, LONDON, E.C.

REMOVAL.

MR. ALFRED PENNY, C.E., begs to give notice that he has REMOVED his Offices from the Wenlock Iron-Works to No. 20, ABINGDON STREET, WESTMINSTER, where he may be consulted as usual on all matters connected with Gas-Works, Water-Works, and Drainage, both for England and Abroad.

MR. WILLIAM DORE (19 years Gas Engineer and Accountant) may be CONSULTED upon all matters relating to the manufacture and distribution of gas, and the management, accounts, or transfer of gas undertakings.

Office, 4, Picton Place, Neath, SOUTH WALES.

PHOTOGRAPHS of the "British and North British Associations of Gas Managers," taken at Tarbet, Lochlomond, on Thursday, June 12, 1873, may be had from JOHN STUART, 123, Buchanan Street, Glasgow. Price, per post (on roller), 3s. each.

HOPKINS, GILKES, & CO.,
LIMITED,
MIDDLESBOROUGH,
SUPPLY GAS & WATER PIPES of EVERY SIZE.
Plain, Turned and Bored, and Coated.
CAST-IRON RETORTS.
Castings for Gas-Works of every description.
EXHAUSTERS.
LONDON OFFICE: 25, LAURENCE POUNTNEY LANE.

THOMAS CARR & SON,
MANUFACTURERS OF
FIRE-BRICKS, LUMPS, TILES, RETORTS, &c., &c.,
SCOTSWOOD FIRE-BRICK WORKS,
NEAR
BLAYDON-ON-TYNE.

E. GODDARD,
GAS-WORKS, IPSWICH,
SOLE AGENT FOR
EDGE'S PATENT
FOR REMOVING THE
CARBONACEOUS INCRUSTATION FROM GAS-RETORTS.

BIRTLEY IRON WORKS,
CHESTER-LE-STREET,
DURHAM.
Manufactory for every description of Casting and Machinery for Gas-Works and Water-Works.
Warehouse in London for Cast-Iron Pipes and Connexions of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.
Agent in London, Mr. J. MANWARING, 101 Cannon Street E.C.

GAS COMPANIES
AND
LOCAL BOARDS
Requiring New Street-Lamps are recommended
KEEN'S PATENT
DOUBLE-CLIP
STREET-LAMP.
A great improvement on the old-fashioned 14-in. Lamps.
They have been sold to various Gas-Works throughout the country and abroad, and the highest satisfactory testimonials are given as to their superiority.
For particulars of price, &c., apply to
WILLIAM KEEN, Sole Proprietor and Manufacturer, Robertson Street, HASTINGS.

SAM. CUTLER & SONS,

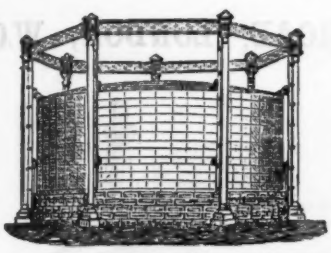
CONTRACTING GAS ENGINEERS,

GASHOLDER & GENERAL GAS APPARATUS MAKERS,

MANUFACTURERS OF

BOILERS, IRON ROOFING, IRON BRIDGES,

AND GENERAL IRONWORK.



S. C. AND SONS undertake Contracts of any magnitude for the **Erection of new and Remodelling of existing Gas-Works**, for **Gasholders, Cast and Wrought Iron Tanks, Iron Roofs**, and every description of **Apparatus** for the Manufacture and Distribution of Gas.

Special attention is invited to their "**Improved Condenser**," which is very effective, and much approved; also to their patterns of **Annular** and other **Condensers, Scrubbers**, and **Purifiers**, of all sizes, which they arrange either with **Centre** or Ordinary **Slide Valves**.

WORKS FOR THE SUPPLY OF

VILLAGES, MANSIONS, FACTORIES, &c.

S. C. AND SONS undertake the **Supply** and **Laying** of **Mains** for **Gas and Water**, and supply all Castings, Connexions, and Fittings for Retort-House, Works generally, and for Streets. They also supply **Valves** of all descriptions, Iron and Clay Retorts, Hotpressed Retort-Lids, Steel Charging-Scoops of improved make, for which they have special machinery, Improved Coke and Coal Barrows, Cross-Bars and Screws, Bolts and Nuts, Furnace and Stoking Tools, Iron and Wood Purifier-Sieves, Lead, Yarn, Borings, &c., including every requisite whatsoever for a Gas-Work, a well-assorted stock being kept of those goods most in request.

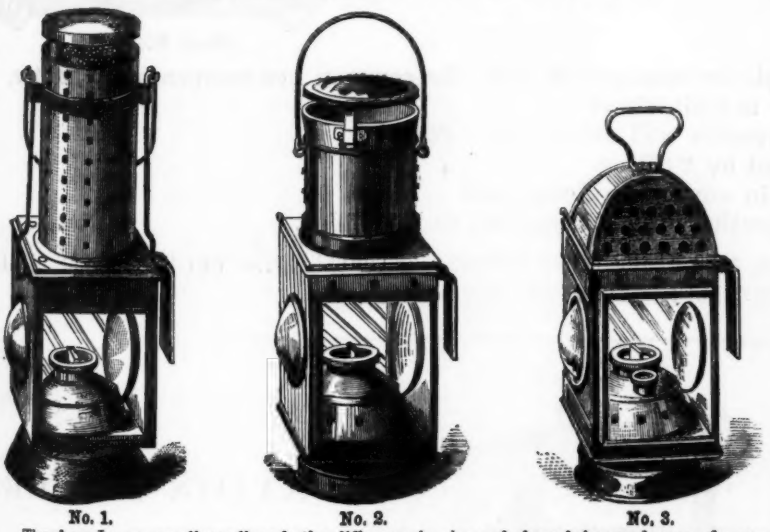
SOLE MAKERS OF BRETT'S PATENT COKE BARROW.

Experienced Retort Setters sent to any part of the Kingdom.

Address: **PROVIDENCE IRON-WORKS, MILLWALL, LONDON.**

ARMSTRONG'S SAFETY LAMPS

FOR GAS-WORKS, MINES, SEWERS, OR SUBWAYS.



No. 1. **No. 2.** **No. 3.**

The above Lamps are all equally safe, the difference in size and shape being made more for convenience by adapting them for use in confined places, as Subways, &c. They have been in use in most of the English and Foreign Gas-Works for many years, giving entire satisfaction. Address—

H. ARMSTRONG,

GAS-METER MANUFACTURER, GAS AND HOT WATER ENGINEER,

43, MANCHESTER STREET, KING'S CROSS.

Gas-Works for Mansions Erected.

G. J. EVESON,

GAS COAL MERCHANT,

STOURBRIDGE.

Delivery per Rail to any Part.

B. CARPENTER'S

IMPROVED WOOD SIEVES

FOR

GAS PURIFIERS & SCRUBBERS.

WORKS:

22, HERMES STREET, PENTONVILLE ROAD,

LONDON, N.

The above Sieves are used by all the Gas Companies in London and a great many in the country. Their utility, durability, and cheapness combined, render them superior to all others.

Testimonials from Gas Engineers who have tested their qualities forwarded on application.

All orders punctually attended to, and estimates given if required.

INTERNATIONAL EXHIBITION, 1862.

CLASS X.

PRIZE MEDAL

For excellence of Fire-Clay Gas Retorts, and "HONOURABLE MENTION" for good quality of Fire-Bricks.

WILLIAM STEPHENSON & SONS,

THROCKLEY,

NEWCASTLE-ON-TYNE.

BRONNER'S PATENT GAS-BURNERS give 99 per cent. of light, as compared with 27 per cent. given by ordinary burners, with equal consumption of gas.—*Vide* "Gas Referees Report," published June, 1869.

HENRY GREENE AND SON, Sole Consignees of Brönner's Patent Improvements in Gas Lighting, 16 and 17, King William Street, LONDON, E.C.

BELGIAN CLAY RETORTS.

J. SUGG and CO., late ALBERT KELLER, GHENT.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.

Communications addressed to J. SUGG & Co., GHENT, will receive immediate attention.

CATHELS & TERRACE'S Patent Four-WAY DISC GAS-VALVE is the simplest and best Valve for Purifiers, and as a By-pass for other apparatus in Gas-Works. It is always gas-tight, and has no springs, ground faces, or other delicate parts. By its use the flow of the gas cannot be accidentally stopped, and it never sticks.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, Foundry and Brass Works, ROTHERHAM.

CATHELS'S Patent District Dry Gas-GOVERNOR is the only perfect self-acting contrivance for Regulating the Pressures in the higher levels of a district.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, ROTHERHAM.

ADDISON POTTER,

WILLINGTON QUAY,

NEAR NEWCASTLE-UPON-TYNE,

Manufacturer of Clay Retorts, Fire-Bricks and every description of Fire-Clay Goods.

CLAYTON'S PATENT SIX-WAY VALVE only requires one valve to work two purifiers; saves more than three-fourths of the connexion-pipes; requires neither tees, elbows, nor bends; no racks or springs to get out of order.

For particulars, apply to CLAYTON, SON, & Co., Gas Engineers, Hunslet, LEEDS.

TO GAS COMPANIES, ENGINEERS, &c.

WOOD SIEVES.—WOOD SIEVES.

Estimates given and Contracts taken by the Manufacturer

GEORGE MACKANESS,

36, EDWARD STREET, HAMPSTEAD ROAD,

LONDON, N.W.

These Sieves are made with parallel or bevel bar, and guaranteed to be well seasoned yellow deal, and not common spruce so generally used.

N.B.—Specimens sent free on application.

JAMES OAKES & CO.,

ALFRETON IRON-WORKS, DERBYSHIRE,

AND

WENLOCK IRON WHARF, 20 & 22, WHARF ROAD, CITY ROAD, LONDON, N.,

Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water Works, including Iron Retorts, Socket and Flange Pipes, Bends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.

N.B.—Orders for Cast-Iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention. CHARLES HORSLEY, Agent.

ALEXANDER F. PAINTER,

CONTRACTING ENGINEER

FOR

GAS & WATER WORKS,

GREAT BERKHAMPSTEAD, HERTS.

Foreign Orders carefully executed. Provincial Gas-Works designed and erected. Extensions of Works carried out with despatch. Mains supplied and promptly laid. Public and Private Buildings fitted up. Gasholders, Purifier Covers, and all Sheet Ironwork. Wrought Ironwork to drawing.

Specifications, Estimates, and Tenders given.

GAS-WORKS LEASED.

THE IMPERIAL METER COMPANY, LIMITED,

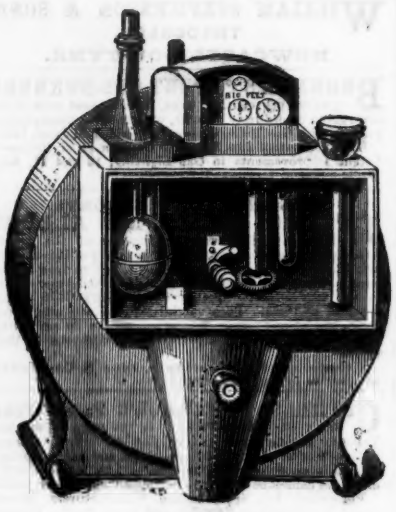
MANUFACTURERS OF

WET AND DRY GAS-METERS,

PRESSURE-GAUGES AND GOVERNORS, AND STREET-LAMP REGULATORS.

FACTORIES:

KING'S ROAD, LONDON, N.W., and GRAY'S INN ROAD, LONDON, W.C.



Front View.

THE

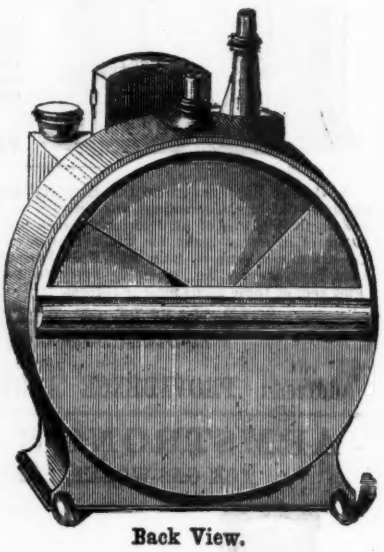
IMPERIAL

COMPENSATING

WET GAS-METER.

DE CASTRO & BURTON'S

PATENT.



Back View.

I. **This Meter is more simple in construction than the common non-compensating Meter.**
II. **An unvarying water-line is maintained.**
III. **No amount or kind of pressure will cause it to "flood."**
IV. **It is practically unaffected by "tilting."**
V. **The friction is less than in any other Meter; and**
VI. **It will last for twelve months without requiring to be refilled.**

THE IMPERIAL METER COMPANY, LIMITED, ALSO MANUFACTURE COMMON NON-COMPENSATING WET GAS-METERS OF ALL SIZES, BOTH IN TIN AND CAST-IRON CASES.

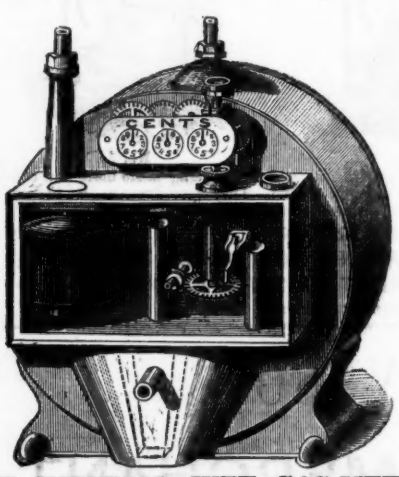
THE COMPENSATING

WET GAS-METER

IS UPHELD FOR

TEN YEARS

WITHOUT CHARGE.



THE IMPERIAL WET GAS-METER.
Non-Compensator.

STATION-METERS

WITH PLANED JOINTS,

AND

GOVERNORS,

MADE TO ORDER.

Mr. GEORGE MACKANESS will represent this Company in the Provinces.

OFFICES: 41, FLEET STREET, LONDON, E.C.

W. MOORE, Secretary.

☞ *All Communications to be addressed to the Secretary.*

THE IMPERIAL METER COMPANY, LIMITED,

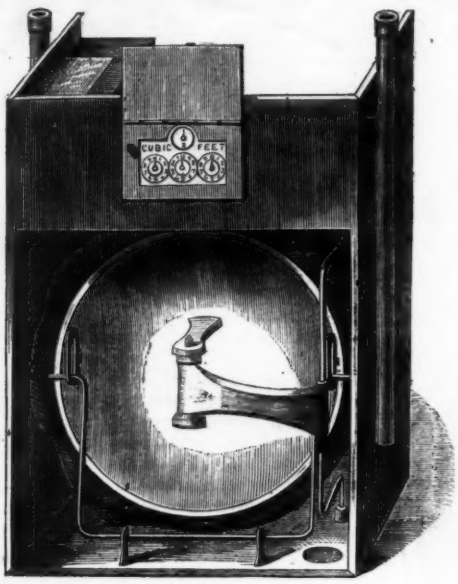
MANUFACTURERS OF

WET AND DRY GAS-METERS,

PRESSURE-GAUGES AND GOVERNORS, AND STREET-LAMP REGULATORS.

FACTORIES:

KING'S ROAD, LONDON, N.W., and GRAY'S INN ROAD, LONDON, W.C.



Front View.

THE

IMPERIAL

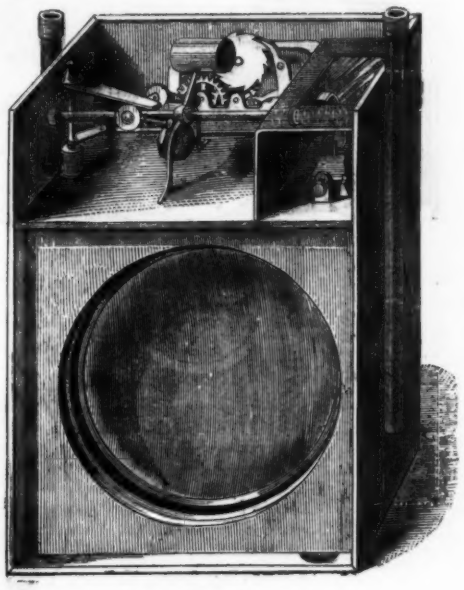
DRY

GAS-METER

SINGLE DIAPHRAGM.

TELLING & JOHNSON'S

PATENT.



Back View.

I. The mechanical construction of this Meter is simpler and stronger than any other.
II. About half as much leather is used as in ordinary dry Meters.
III. The Meter has only one valve, and this cannot "stick."
IV. The lights maintain perfect steadiness and strength of flame. There is no "draw."
V. The gas consumed can only be measured from the inlet to the outlet, and
VI. The index cannot be made to register backwards.

THE IMPERIAL METER COMPANY, LIMITED, ALSO MANUFACTURE ORDINARY DOUBLE DIAPHRAGM DRY GAS-METERS OF ALL SIZES, BOTH IN TIN AND IN CAST-IRON CASES.

SPECIAL ATTENTION

IS PAID TO THE

MANUFACTURE OF

STREET-LAMPS

AND

REGULATORS.

EVERY

DRY GAS-METER

IS UPHELD FOR

SIX YEARS

WITHOUT CHARGE.

THE IMPERIAL DRY GAS-METER.
Double Diaphragm.

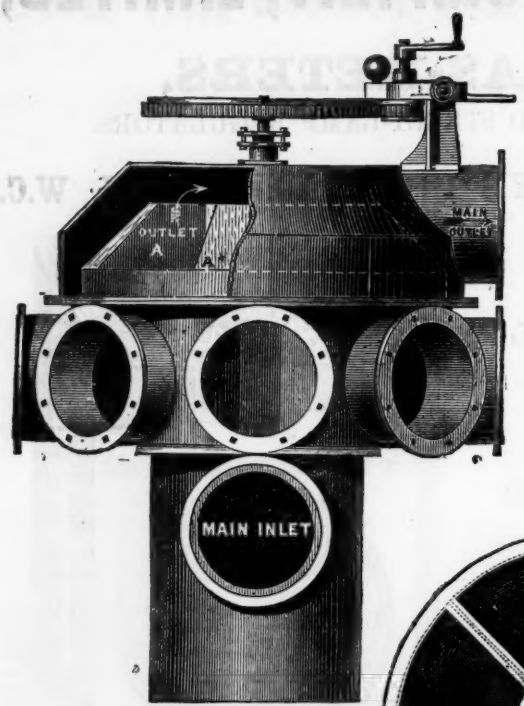
Mr. GEORGE MACKANESS will represent this Company in the Provinces.

OFFICES: 41, FLEET STREET, LONDON, E.C.

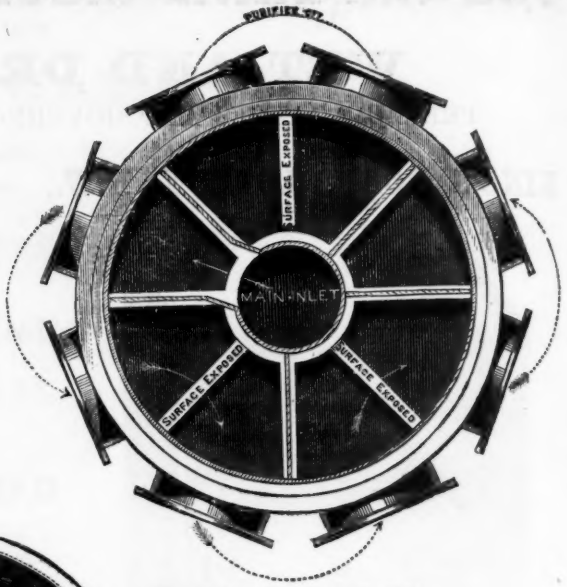
W. MOORE, Secretary.

☞ *All Communications to be addressed to the Secretary.*

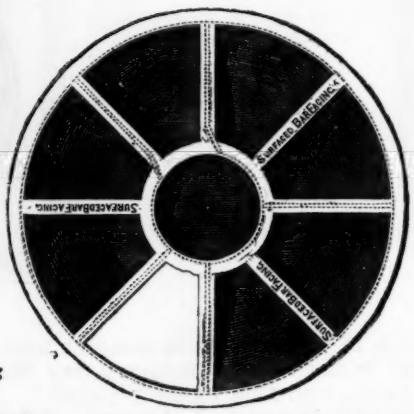
C. & W. WALKERS' PATENT CENTRE-VALVES.



Elevation of the Centre-Valve for four Purifiers. The safety cover is shown broken, to enable the Valve itself, which is inside, to be seen.



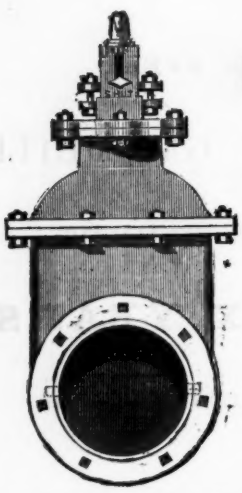
Plan of the Body, showing the Valve lying in it, with three of the facings, which were formerly exposed to settlements of dirt, carbon, naphthaline, &c., but which are now always covered by the surfaced bar-facings of the Valve. (See below.)



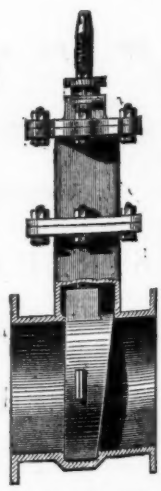
Plan of the Valve, or upper portion, showing the surfaced bar-facings referred to above.

These PATENT CENTRE-VALVES are the most perfect and certain means for working Purifiers. The Valve itself is protected from all injury inside the safety cover. The working of the Valve is so easy, and so governed by the stop-catch movement, that the Purifiers can be instantaneously changed in the dark as well as in daylight. They are scraped perfectly true, metal to metal, the facings heretofore exposed are always covered, and there is nothing more reliable, certain, and durable in a gas-works. By their use the floor of the Purifying-house is clear and level; the Valve and all connexions being beneath the floor, out of the way of working. A very considerable improvement and saving is effected in the cost of the connecting-pipes.

FOUR-WAY CENTRE-VALVES FORMING INLET, OUTLET, AND BYE-PASS.



C. & W. WALKERS'
DOUBLE-FACED GAS-VALVES.



These solidly constructed double-faced Gas-Valves are superseding the old system of the light, single-faced disc, which is too uncertain and unreliable in large bores.

They are guaranteed absolutely gas-tight. They are very massive and rigid, and by improved modes of manufacture they are produced at very little excess in cost over the old light, weak system, which is liable to spring and bend, and become leaky.

The Valve is a rigid wedge of solid cast iron, having two perfectly scraped surfaced facings fitting between the two on the body, which are also surfaced.

A spring in two short halves, and, therefore, not liable to break, is used only for scraping the front facing clean.

The front facing is vertical; the back facing forms the wedge.

At a slight additional expense both flanges are faced to bolt to main-pipes.

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Extract from Report by Dr. Letheby:—

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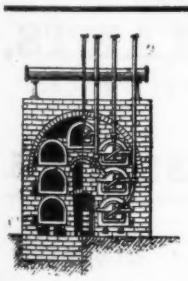

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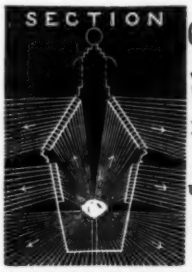

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for Streets and all Situations where the Light ascending above the level of the Lamp is wasted,

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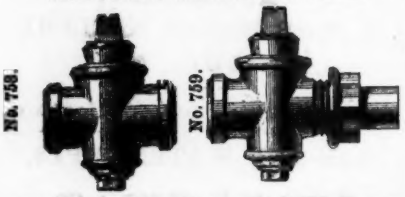

The bodies of these Taps are made of Iron, black or galvanized, and the Plugs of Patent Metal. They are warranted not to set fast or corrode as do iron or brass Cocks, will always work easily, are strong, well made, durable, of little or no intrinsic value, and, therefore, not likely to be stolen; and the PRICES are (especially upon the larger sizes) FULLY 50 PER CENT. LESS THAN BRASS COCKS.
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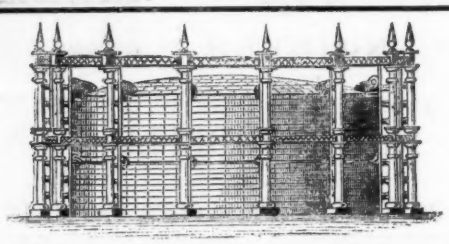
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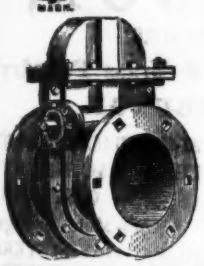

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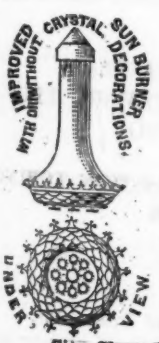

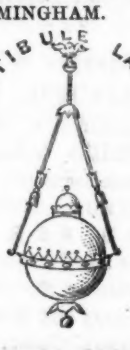

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This Cannel produces in actual working, in iron retorts, 9200 cubic feet of 32-candle gas, and upwards of 11 cwt. of coke, and in clay retorts will produce 11,500 cubic feet of 25·9-candle gas.

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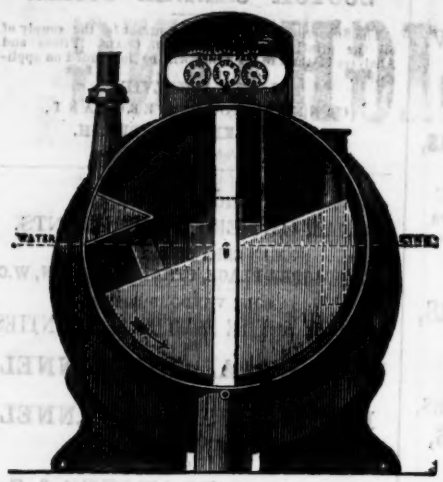

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"Unquestionably the best Water Gas-Meter now in use."

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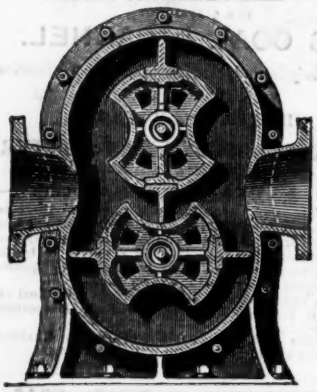

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